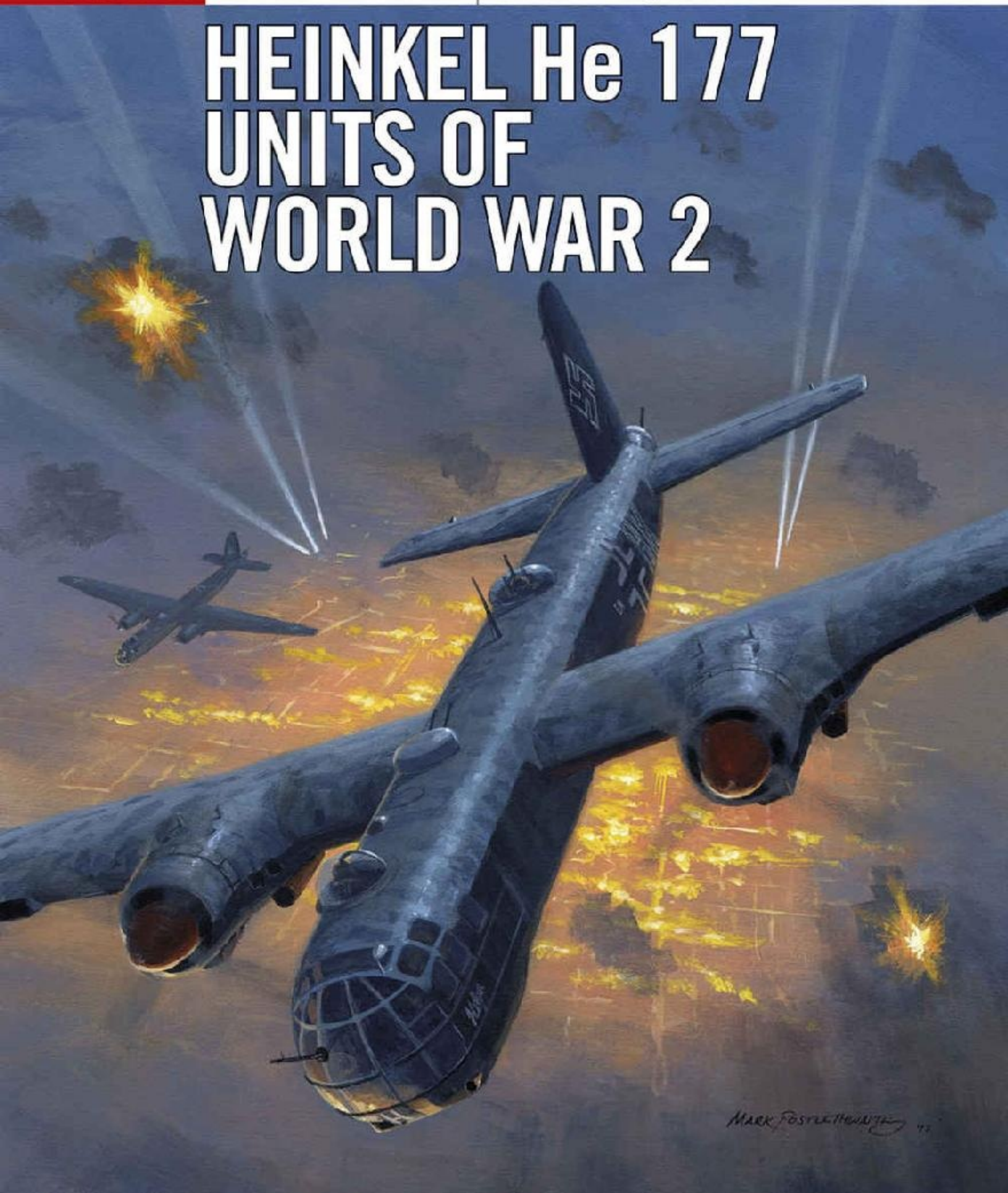
COMBAT AIRCRAFT 123

Robert Forsyth

HEINKEL He 177 UNITS OF WORLD WAR 2



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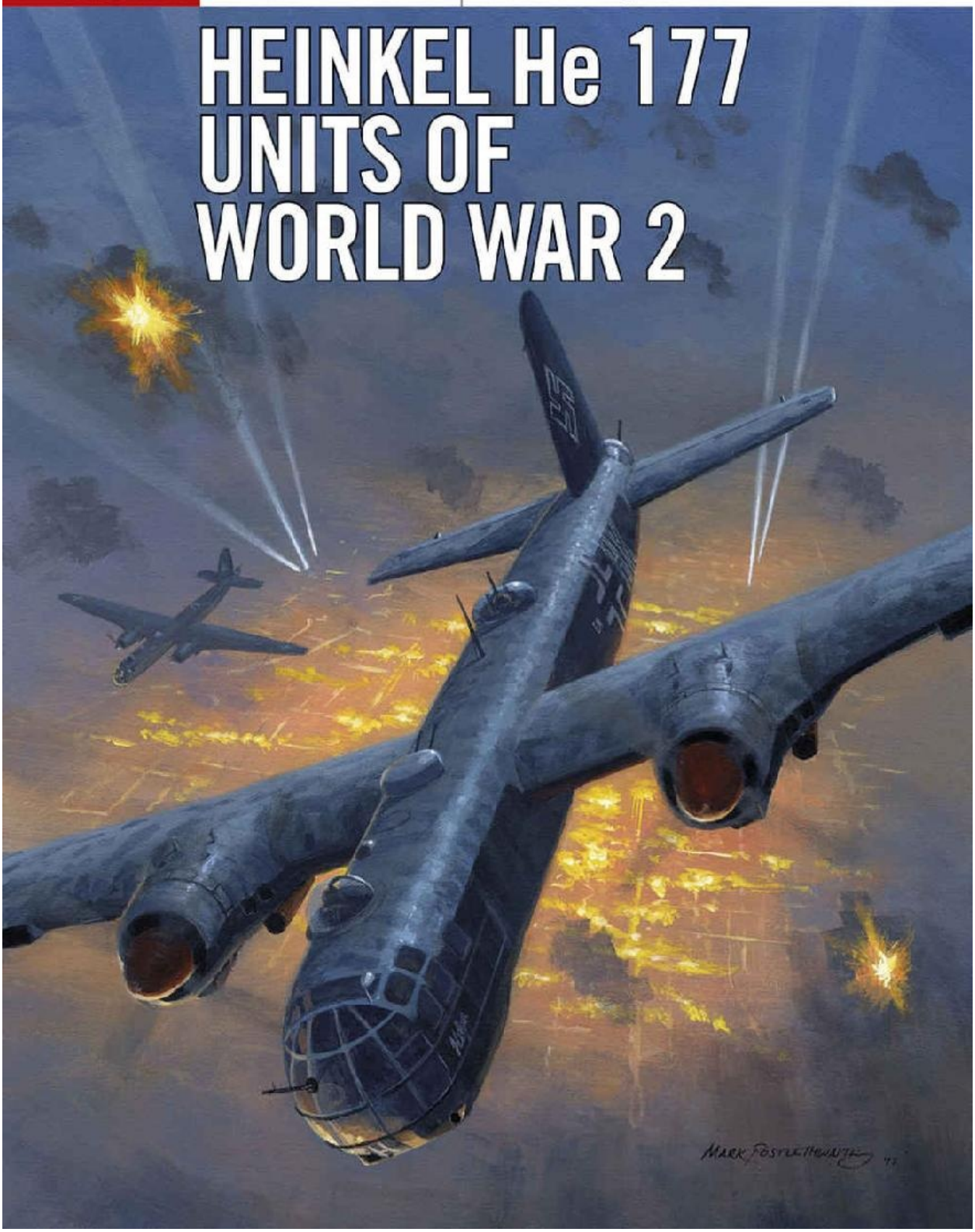

SERIES EDITOR TONY HOLMES

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OSPREY PUBLISHING

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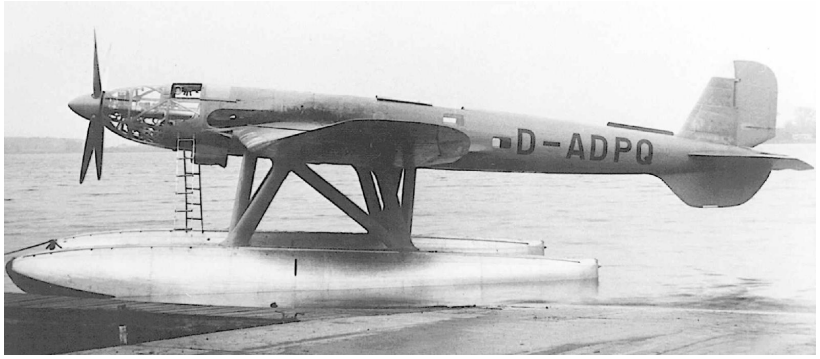
CHAPTER ONE

‘BOMBER A’

In the history of aviation, many aircraft, civil and military, have been the cause or subject of tortuous development, heated debate, disagreement, uncertainty, confusion and often danger. The Heinkel He 177 was no exception and encompassed all of these factors throughout its design, evolution and operational deployment.

The story begins at a meeting of a special commission convened in Berlin at the *Reichsluftministerium*’s (RLM – German Air Ministry) *Technisches Amt* (Technical Office) on the morning of 3 June 1936, chaired by Fliegerstabs-Ingenieur Oberst Roluf Lucht of the department LC II, responsible for the development of aircraft, aircraft engines, equipment and weapons. The room held an impressive gathering of engineering intellect and technical acumen, including aircraft designers Ernst Zindel of Junkers, Dr-Ing Richard Vogt and Bürkner of Blohm & Voss, Robert Lusser and gliding pioneer Fritz-Heinrich Hentzen of Messerschmitt, Friedrich Nicolaus of Henschel and Heinkel engineers Eichler and Meschkat, along with senior specialists of LC II’s aircraft and aero-engine development sections.



The sleek He 119 high-speed bomber/reconnaissance aircraft was intended to incorporate advance aerodynamic technology in the late 1930s. It was powered by the DB 606 coupled engine, with early tests illustrating that motor’s unreliability. Seen here is the He 119 V3, which was used as a test machine for planned anti-shipping operations

The objective of the commission was to explore the feasibility of producing a strategic bomber with a range of 5000 km and the ability to carry a bomb load of 500 kg at 500 km/h for half that distance, a service ceiling of 6000 m and a maximum altitude of 10,000 m. The design was to include a crew of four,

defensive armament of two machine guns or cannon and it was to be powered by an unspecified number of the latest engines produced by Daimler-Benz, Junkers, BMW or Argus.

During the mid-1930s, the Luftwaffe had been riven by conflicting views on the merits of heavy, long-range bombers. Despite much post-war literature stating the contrary, Germany did, in fact, remain committed to the concept of building a strategic bomber fleet from 1933 through to the mid-war years. The fledgling Luftwaffe's first Chief of Staff, Oberst Walther Wever, a man of charm and considerable, far-sighted intellect, and with a reputation as a hard-working and demanding commander, played a significant role in fostering this goal. It was his view that the Luftwaffe would need a multi-engined bomber in order to prosecute effective strategic air warfare in the future.

Wever reasoned that Germany's main enemy would be Russia. As such, any future war would involve industrial targets deep within the Russian hinterland, possibly east of the Ural Mountains, hence the concept of a four-engined, long-range bomber – or 'Ural Bomber' – was born. Wever subsequently ordered a specification to be issued by the RLM to Junkers and Dornier for an aircraft capable of fulfilling this role. It was a specification that was well in advance of the plans of most of the world's air forces, and it would stretch the resources of the still very young post-World War 1 German aircraft industry to its limits – demanding the carrying of a heavy bomb load over a great distance with the benefit of speed and good defensive armament. By May 1934, the development of such a heavy bomber became the Luftwaffe's top priority, and the resulting designs became known as the Dornier Do 19 and Junkers Ju 89.

However, Oberst Wilhelm Wimmer, head of the *Technisches Amt*, who was considered to have the best technical mind in the Luftwaffe, became disappointed by the design of the new bombers even before they flew, and with Wever's approval, he issued revised specifications and demanded totally new proposals: hence the Berlin commission of 3 June 1936.

As a result of this meeting, another bomber specification began to take shape under the design-concept name 'Bomber A', a tender for which was put out to the five aircraft manufacturers that had been in attendance. 'Bomber A' was to weigh 27 tonnes, have a range of 5000 km and a speed of 500 km/h at 5500 m. Like the 'Ural Bomber', the plan was for the aircraft to be powered by four engines, each of around 1000 hp, of either the Daimler-Benz DB 601 or Jumo 211 12-cylinder liquid-cooled in-line type, the Jumo 206 six-cylinder diesel, the BMW 139 or Bramo 329 14-cylinder air-cooled radials, or the Argus

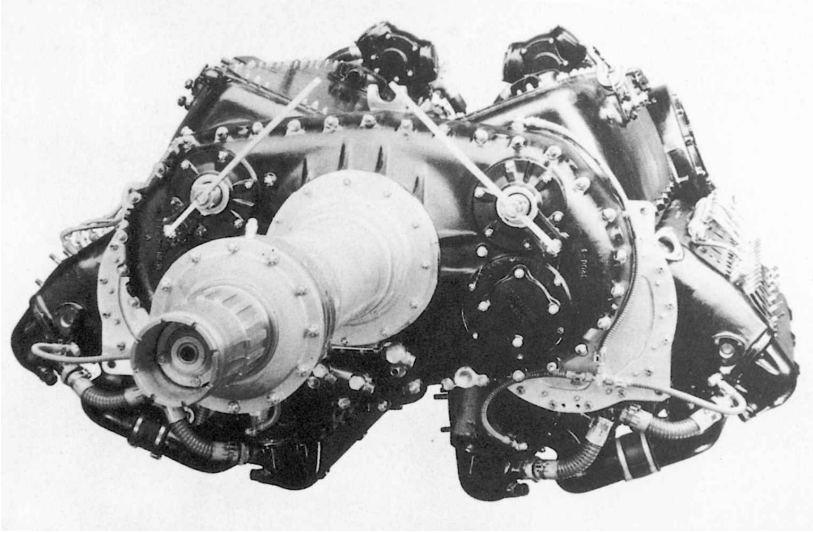
As 412 14-cylinder liquid-cooled in-line. The aircraft was to be able to take off, overloaded if necessary, within 1000 m. It was further decreed that the bomber should be capable of carrying the heaviest types of ordnance.

‘Bomber A’ would be operated by a crew of three, made up of two pilots, one of whom would command the aircraft and operate one of its defensive guns, while the third man would act as radio operator and gunner.

In an ominous portent, however, the same day that the Berlin meeting took place, Oberst Wever was killed in a flying accident, forcing a rethink of the entire *‘Ural Bomber’* concept.

Meanwhile, at his works at Rostock-Marienehe, the creative, ambitious and industrious Ernst Heinkel went to work on a design to conform to the ‘Bomber A’ requirement, and it was his offering that was accepted by the RLM. As Heinkel recorded in his memoirs;

‘I got that contract for various reasons. Firstly, on account of the Air Ministry’s decision to turn me into a bomber designer after the success with the He 111, and secondly from considerations of a quite different nature.’



The Daimler-Benz DB 606 engine, with its twin 12-cylinder DB 601 liquid-cooled units mounted either side of the gearing system from which extends the shaft. Note how the DB 601s have been set so that the inner cylinder banks were disposed almost vertically. Intended to produce 2350 hp, the engine suffered a troublesome history

These ‘considerations’ centred upon engines, an area in which Germany was faltering in terms of performance for heavier aircraft. Indeed, BMW, Daimler-Benz and Junkers were working on engines of 2000 hp, but none had so far actually powered an aircraft in the air. A solution lay in the idea of coupling two

engines to effectively double power in one unit while also maintaining drag levels to that of one engine.

In 1936, Heinkel approached Daimler-Benz with this idea in respect to the He 119 experimental high-speed bomber/reconnaissance aircraft. The He 119 was, to all intents and purposes, a private venture on the part of Heinkel, with the aim of incorporating the most advanced aerodynamic technology. A radical design featuring a 'pencil' fuselage, fitted with low elliptical wings and tail, the aircraft would be powered by the new DB 606 that comprised two 1100 hp DB 601 engines mounted adjacent to each other and inclined so that the inner cylinder banks were disposed almost vertically. The two crankcases were connected by a single gearing system and clutch arrangement. The two crankshaft pinions drove a single propeller via a long shaft, with two of the crew accommodated either side of it within a forward glazed section, while a third crewmember sat aft of the wings.

Initially, Ernst Heinkel admitted to being 'rather doubtful' about the concept, but four landplane prototypes of the He 119 – presented to the world for security reasons as the 'He 606' – had been completed by the end of 1937, and a seaplane variant followed. The V4 went on to claim a world speed record when, in November 1937, it achieved 504.59 km/h at a height of 4500 m while carrying loads of 500 and 1000 kg over 1000 km from Hamburg to Stolp and back. This gave credence to the concept of the coupled engine.

It would be another four months before the RLM issued its specification for the 'Bomber A', but the only company considered capable of seriously developing the aircraft was Heinkel on account of its work with the He 119. On 16 October 1936, Heinkel allocated the 'Bomber A' assignment the project reference 'P 1041'.

Work on the P 1041 proceeded slowly under the overall direction of Prof Dr-Ing Heinrich Hertel. He had worked at the *Deutsches Versuchsanstalt für Luftfahrt* (DVL) at Berlin-Adlershof as a test engineer, and in 1930 received his doctorate from the *Technisches Hochschule* in Berlin-Charlottenberg, his thesis centring on 'torsional rigidity and torsional strength in aircraft components'. Hertel joined Heinkel at Rostock in 1933, being appointed Technical Director a year later.

Reporting to Hertel specifically to undertake design projects were the Günter twins, Siegfried and Walter. Born on 8 December 1899, the brothers had joined the same artillery regiment in 1917 and were subsequently captured by the British on the same day! Both spent time in England as PoWs. Following World

War 1, they enrolled at the Technical University in Hannover to study aircraft design. Siegfried was the mathematician of the pair, while Walter was more artistic, with a true flare for design. In their spare time, the twins built gliders, and one of their efforts, built with their friends Walter Mertens and Werner Meyer-Cassel, caught the attention of businessman Paul Bäumer, who witnessed the craft flying over the famous Wasserkuppe plateau in the Rhön Mountains where so much advancement in German sailplane development took place during the inter-war years. Bäumer immediately offered the twins jobs with his Bäumer Aero company in Berlin. There, they began designing motor gliders and, increasingly, fast sports machines, including one in which Bäumer was killed in a crash in 1928.

In 1931, the twins applied for positions with the Ernst Heinkel Flugzeugwerke at Warnemünde. The eye of Ernst Heinkel had also been caught by one of the twins' designs, and he later recorded his first impressions of Siegfried Günther;

'A 30-year-old man stood in my office. He was extraordinarily solemn and in suitably old-fashioned clothes. He wore a stiff collar and a dickey. His jacket was carefully buttoned, his cuffs protruded well out of the sleeves and on his nose was perched a pair of rimless glasses. The young man looked sober, not to say shy. One could easily have imagined him to be a parson or school-teacher, but under no circumstances an aeroplane designer and one who had succumbed to the intoxication of speed into the bargain.'

A little later, after Heinkel had met Walter, he recorded;

'They were both bachelors, took rooms with a widow and hardly ever went out in society. If they had a passion, it was for good food and fast cars. With their small, pretty little Fiat, they drove at speed, which in their case was as incongruous as seeing a country parson in a racing car. This very strange pair represented what unconsciously I had been seeking. The brothers could complete and co-ordinate what I saw roughly in my mind. They combined technical efficiency with a feeling for artistic beauty. They could design the aerodynamic shape I was looking for.'

Heinkel's quest for 'aerodynamic shape' was very much ahead of what were actually being built as 'strategic' bomber aircraft in Germany in October 1936. The emerging Do 19 was a box-like, mid-wing monoplane with twin tail fins, powered by four 715 hp Bramo 322 H-2 radial engines and fitted with a retractable undercarriage. The crew of nine comprised pilot, co-pilot/navigator, bomb-aimer, radio operator and five gunners. It was fitted with a nose turret housing a 7.9 mm MG 15 machine gun, with another such weapon in the tail and

a pair of two-man dorsal and ventral turrets each armed with a 20 mm cannon. The prototype flew for the first time on 28 October 1936 without armament, but it was quickly realised that the aircraft was underpowered and that the two-man turrets simply added more weight. The second and third prototypes featured more powerful 810 hp Bramo 132 F engines.

By comparison, the Ju 89 was a better performing machine, with the V1 fitted with four 1075 hp Jumo 211 engines. The aircraft made its first flight in December 1936 and was followed early the next year by a second prototype powered by four Daimler-Benz DB 600 engines. Similar to the Dornier, the Ju 89 was to have been armed with a 7.9 mm machine gun in the nose and tail positions and with 20 mm cannon in dorsal and ventral turrets.

Soon after, Generaloberst Hermann Göring gave an order for all further development work on the 'Ural Bomber' types to cease and the project was officially shelved on 29 April 1937, despite protests from the *Technisches Amt*. 'The *Führer* will never ask me how big our bombers are', Göring commented, 'but how many we have'. At this, the Do 19 was abandoned and all prototypes scrapped, while the Ju 89 V1 was converted to become the Ju 90 transport.

Meanwhile, at Heinkel, the Günter twins had been continuing work on enhancing the cooling system of the DB 606 engine with which it was planned to power the P 1041. By employing evaporative cooling, a method pioneered by Heinkel and used in the smaller, single-engined He 100 and He 119, the need for drag-inducing radiators in a larger aircraft could be eliminated. Coolant water and anti-freeze would be pressurised, meaning that it could be heated to 100 degrees centigrade – boiling point – before steam began to form in the engine. The heated water would then be ducted away and depressurised, at which point steam formed. The water which then formed was returned to the engine. Simultaneously, the residual steam was channelled through pipes built into the wing, cooled by the airflow. Once condensation had followed, water from the pipes in the wing would be returned to the engine.

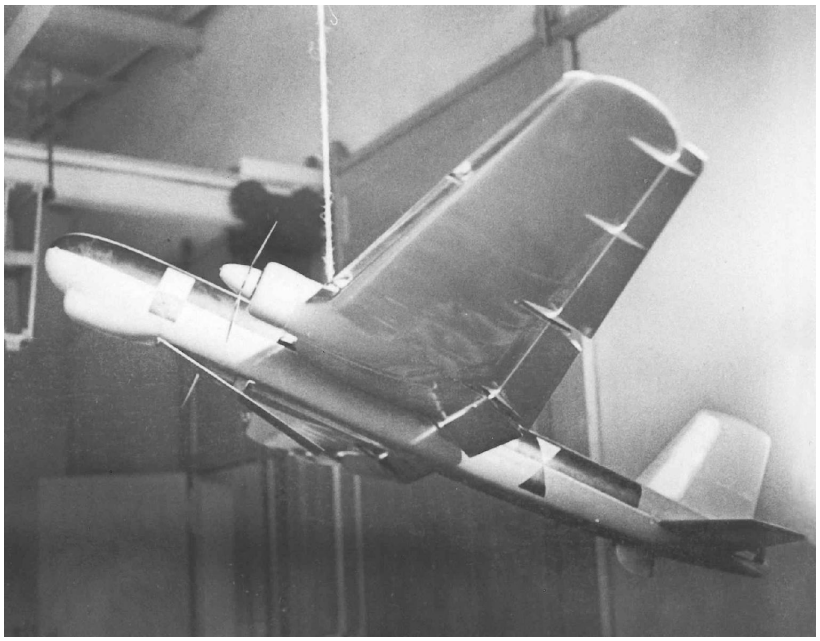
The overall design of the P 1041 was clean and simple, if unremarkable – a mid-wing monoplane incorporating a semi-circular section, all-metal, fuselage with a stressed duralumin skin, at the forward end of which was a glazed nose section. The high-aspect ratio wing was built in three sections around a single spar, the centre portion having a parallel chord. A large single vertical tail was set above square-section horizontal stabilisers and elevators.

The DB 606 coupled engines were located in the centre of the wings, beneath each of which was a pair of oleo legs holding two large mainwheels. The two

legs would retract inwards and outwards respectively in opposite directions and would lock up into the wing. The entire length of the wing trailing edges were taken up with Fowler-type flaps, the outer sections forming the lower part of the ailerons.

For armament, it was Siegfried Günter's initial intention to fit the aircraft with three advanced, aerodynamically clean, remotely-controlled gun barbettes plus a manned tail turret. Although requiring more complex engineering, gun barbettes were smaller and thus reduced drag, and allowed a gunner to be located at the best possible position for observation and the avoidance of gun flash. However, in the mid- to late-1930s, barbette design was rudimentary and so Günter would have to settle for conventional, manned gun dorsal turrets, each armed with a 13 mm MG 131 machine gun, which increased drag. At one point, Heinrich Hertel had suggested fitting weapons into the wing roots in order to maximise internal space, but this idea was never progressed.

On 2 June 1937, Heinkel received authorisation to proceed with a series of pre-production aircraft. On 22 June, the company issued its planned production schedule, with the inspection of the first mock-up of the P 1041 planned for 1 July 1937 and approval and finalisation by 1 August. The first prototype was to be cleared for flight-testing by 1 June 1938, with delivery scheduled as 1 September that year. Delivery of the first pre-production aircraft would take place on 1 October 1939.



The 'Greif' emerges. This 1:14-scale wind tunnel model of the He 177 was used by the *Deutsches Versuchsanstalt für Luftfahrt* in the late 1930s to assess aerodynamics

The inspection of the mock-up by LC II at Rostock-Marienehe on 6 August 1937 revealed several shortcomings, including poor visibility for the crew, poor field of fire for the guns and poor positioning of instruments. However, work to rectify these initial failings proceeded as quickly as possible, and by the time the improved mock-up was ready for further inspection the RLM had assigned the design the code '8-177' – it also referred to the aeroplane using the manufacturer prefix 'He 177'. In this guise, three versions were proposed: 'A', a short-range bomber with range of 2000 km; 'B', a medium-range bomber with range of 3000 km; and 'C', a long-range bomber with range of 5000 km.

The revised mock-up was approved on 11 November, but again problems were to surface shortly afterwards. The gravest of these centred on the evaporative cooling system that proved too complex and was potentially at risk from combat damage. The solution would entail the introduction of larger radiators which, in turn, would introduce drag and weight, thus reducing range. Further fuel tanks needed to be installed in the wings, which required strengthening and adversely affected performance. At this point, the Günters' original design plan had been so changed that it became virtually impossible to redress.

On 31 May 1936, Generalmajor Wimmer was replaced as head of the *Technisches Amt* by Oberst Ernst Udet, the extrovert World War 1 fighter ace and holder of the *Pour le Mérite*, who was an advocate of small, fast aircraft with little regard for Wever's earlier plans for a long-range bomber. His opposing views were shared by *General der Flieger* Erhard Milch, the Secretary of State for Aviation. In such a capacity Milch believed that the manufacture of four-engined bombers would prove too costly in metal and other vital raw materials.

Like Milch, Göring and Udet based their opposition to the notion of a four-engined bomber on the drain it would cause to resources of raw materials. Indeed, Udet once commented to Ernst Heinkel;

'In future there won't be any more multi-engined bombers unless they can attack as dive-bombers. By its accuracy, a medium-sized, twin-engined machine, which, in a dive, can hit the target with its bomb load of 900 kg, has the same effect as a four-engined giant which carries 2500-3500 kg of bombs in horizontal flight and can only drop them inaccurately. We do not want these expensive, heavy machines which eat up more in material than a medium, twin-engined dive-bomber costs. Junkers has completed his first twin-engined Stuka, the Ju 88. We can build two or three with the same amount of material that a four-

engined machine needs and achieve the same bombing effect. Furthermore, with the cheap super-Stukas, we can build up the numbers the *Führer* wants.'

According to Heinkel, he probed Udet over the He 177, commenting, 'What about our 177? If the four-engined bomber is no longer of any interest, there's no use our continuing to develop it'.

The decision in favour of the Ju 88 was founded in the mistaken theory that in the Junkers medium bomber the Luftwaffe had an aircraft with adequate strategic capability whatever the scope of the *Führer*'s military ambitions. Therefore, although strategic thinking had not been lost, the Germans continued to believe that they had a strategic air force which could, with the Ju 88, achieve Hitler's war aims of embarking on short campaigns or major wars against Britain or Russia, despite Udet's apparent mistaken assertion to Heinkel that there would no war against Britain.

'We'll go on developing the He 177 for research purposes', Udet told Heinkel. 'Perhaps later we can use it as a long-distance machine for the Navy, but it must be able to dive, or else it won't stand a chance'. Heinkel objected to Udet's rationale, responding that such a large aircraft could never be a dive-bomber. Udet chose to overlook the fact that, in reality, the He 177 was a four-engined aircraft. 'In practice the machine is twin-engined, and if the twin-engined Ju 88 can be a dive-bomber, why can't the He 177?'

Admittedly, the prevailing standard of German horizontal bombsights was not good, and, practised well, dive-bombing could achieve accurate results, but the required manoeuvre and dramatic recovery climbs of dive-bombing placed immense strain on an airframe. The only way to protect the airframe was to strengthen it, which, in turn, meant the aircraft became heavier. In Udet's view, any weight increase could be absorbed by twin-wheel undercarriages.

The point was that the requirement to dive-bomb violated the whole concept of the He 177's design and raison d'être. Every time more weight or drag was introduced the aircraft's speed suffered, and it would require more fuel just to cover the same distance it could before. Yet Udet remained convinced that future success lay in dive-bombing, and that the key to that success lay, principally, in the Ju 88. Indeed, the bullish Heinrich Koppenberg, a staunch Nazi who was appointed by Milch to assume control of Junkers in the wake of Hugo Junkers' expulsion by Milch from his business, once boasted that the Ju 88 construction programme, of which he was the architect, would destroy any chance the He 177 had of making an impact with the RLM. The Heinkel's cause was not helped by

the fact that its development had been caught in a weight and/or drag-speed-range-more weight spiral.

Nevertheless, the four-engined bomber never went away. In 1937, at a meeting with Göring and Milch, the Chief of Branch 1 of the Luftwaffe Operations Staff, Major Paul Deichmann, pressed Göring for authorisation to continue work on a four-engined bomber 'at all costs'. As Deichmann recalled in a post-war paper;

'I emphasised that the four-engined bomber was capable of a far greater flight range than could ever be developed for its twin-engined counterpart. I continued explaining that a four-engined bomber was capable of attaining a sufficiently high service altitude to keep it safely out of the range of anti-aircraft artillery fire. Its considerably greater carrying capacity would permit it not only to carry a greater number of bombs, but also heavier armour plating and more and better airborne armament. Its higher speed would help reduce its vulnerability to attack by enemy fighter aircraft.

'General Milch interrupted, demanding to know from where I had obtained all this information on the "fantastic" performance of the four-engined bomber. He told me that his own aeronautical engineers had come up with far less favourable prognoses. I replied that I was aware of the views held by this particular group of engineers within the RLM, but that a considerable number of the engineers connected with the *Technisches Amt* were of a quite different opinion. The only way to determine which group was right was to let the developmental work continue. At this Milch declared that all available industrial capacity was needed for the production of Ju 88s.

'In summary, General Milch pointed out the following facts: 1) the much vaunted advantages of the four-engined bomber were far overrated, both in Germany and abroad; 2) what would be the point of its being able to fly at 52,800 m?; 3) our industrial capacity would permit a fleet of only 1000 heavy bombers, whereas several times that many twin-engined bombers could be produced; 4) the development of a four-engined bomber, even for limited production as test models, would endanger the Ju 88 programme.

'I begged Göring not to decide against the four-engined bomber without further evidence, but to let the developmental work on it continue. Despite my pleas, Göring determined that work on the four-engined bomber should be dropped in as much as it might interfere with successful accomplishment of the Ju 88 programme.'

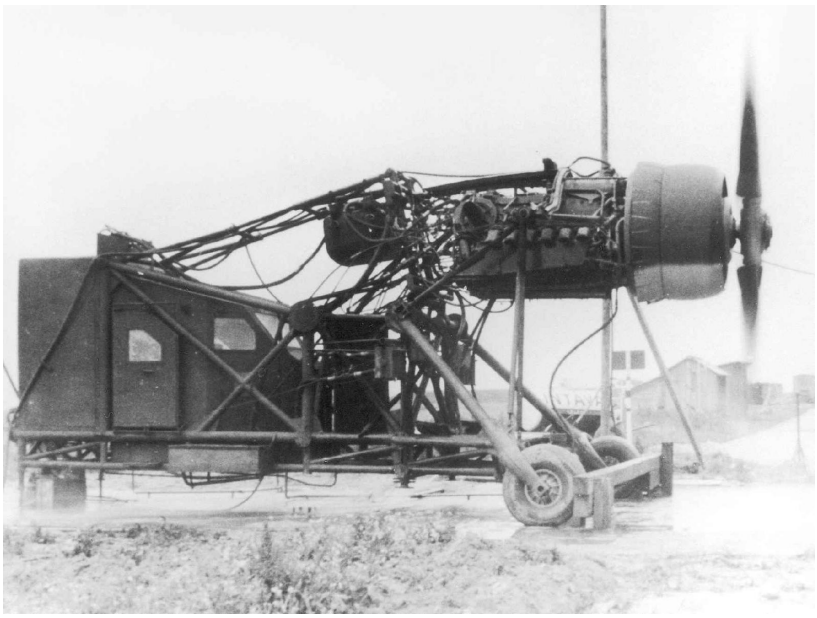
By early 1938, as construction of the first He 177 prototype was underway, it was clear there would be problems with build and timing. Much of this was founded on the lack of availability of the DB 606 engine with which it was planned to power the Heinkel. But even as Heinkel was grappling with the first prototype, the RLM upped its requirements for the He 177. Range was to extend to 6700 km at an altitude of 4000-6000 m, while the crew was to be increased to four, accommodation being in a fully-glazed nose cabin. The aircraft was also to be provided with dual controls, with handling suitable for pilots of average ability.

Furthermore, when Dr-Ing Hertel visited the RLM on 28 September he was informed that altogether six prototypes – all capable of dive-bombing – would be required as soon as possible. Hertel implored the RLM to apply pressure on Daimler-Benz to make the DB 606 ready, but the only versions available were a pair of prototypes that had been intended for the aforementioned He 119. A suggestion made by Ernst Heinkel to fit four Jumo 211 engines into two He 177 prototypes was dismissed, as the aircraft designer recalled;

'As the re-equipment of the bomber force dragged on through 1938 and 1939, we continued our work on the He 177 without any special interest being evinced by the Ministry. Hertel informed me, with all the powers of his conviction, that all was going well. Only Günter sometimes complained that he had no confidence in the use of the DB 606 in the heavy machine. He was afraid of surprises. Growing cautious from these hints, I proposed to the Ministry on 19 November 1938 that they should not base everything on the success or failure of the rapidly tested double engine in the He 119, but should also authorise a second and third prototype of the He 177 as a normal, four-engined aircraft, with four single Jumo 211s.

'This proposal was turned down flat by the General Staff, which gave the following reasons – "The efficiency of the He 177 in dive-bombing depends upon the use of only two power units. The normal four-engined plane cannot be used as a dive-bomber. A development in that direction is consequently ruled out".

'Günter declared when he read this letter, "They've gone absolutely crazy on dive-bombing. It's become a mania".'



A Daimler-Benz DB 606 engine rigged to a mobile test stand. The motor is running under control from the cabin to the rear. The DB 606 proved to be a ‘forced measure’, over-engineered and complex, leading ultimately to unreliability, failures and fires

With the lack of any immediate prospect in the appearance of the DB 606, in another initiative, Heinkel and Hertel approached Junkers with a view to coupling a pair of Jumo 211s to create a new 24-cylinder Jumo 212 engine, smaller in size than the Daimler-Benz. Junkers’ early performance estimates indicated a speed bonus of some 15 km/h with the new engine, but there seems to have been no further immediate development.

On 17 September 1938, *General der Flieger* Hellmuth Felmy, the commander of *Luftwaffenkommando* 2, was appointed to lead a special staff to examine the prosecution of the air war against Britain. Felmy reported that ‘with the means presently available, we can only count on harassing effect’. He considered that operations against the British Isles would be impossible without securing advance airfields in the Low Countries and northern France, since existing German aircraft lacked range (aside from the fact that Luftwaffe aircrews were ill-prepared for extended over-water and long-range bombing missions). The dogged He 111 could attain 650 km if its bombload was reduced to 500 kg, thus placing some targets in range, but by no means the whole country.

While Felmy’s staff initially suggested using the four-engined Fw 200 Condor and Ju 90 transports as bombers, somewhat unsurprisingly they were dropped in favour of bringing in the dedicated He 177. Oberstleutnant Hans Jeschonnek, the Chief of the Luftwaffe Operations Staff, therefore drew up a bomber force for

the autumn of 1942 that saw 58 bomber *Gruppen* of Ju 88s and He 177s, of which there should be at least four *Gruppen* of He 177s. In addition, there were to be 13 long-range reconnaissance *Gruppen* that were also to include He 177s.

At a conference held at Göring's country residence of Carinhall on 26 October 1938, in what was a tumultuous volte-face, Jeschonnek opined that a force of at least 500 He 177s would be needed by 1942 in order to prosecute effective air warfare against Britain. For its part, however, the *Technisches Amt* felt that the Heinkel would not be ready for operational deployment until late 1942 since it was still undergoing testing and development. Nevertheless, on 12 November, the RLM issued its official order for the construction of a first, unarmed prototype, the He 177 V1, which would be delivered, complete with DB 606 engines, on 27 February 1940. Three days later, the *Technisches Amt* drafted its new *Lieferplan* (Production Plan) No 9 in which it was projected that production of series He 177s would commence in December 1940, with 703 aircraft to be built by 31 March 1942 at a rate of 200 per month.

Away from the corridors of the RLM, at a meeting on 17 November, the Heinkel development team decided to fit the first two He 177 prototypes with DB 606 units, while to allow for the short supply of such engines, the V3 and V4 would carry four separate engines each.

By the end of 1938, even the sceptical Udet was calling for He 177s to be included in the Luftwaffe's bomber construction programme for 1939-42. But by December 1938-January 1939, as the RLM was drafting up its *Lieferplan* No 10, already delays were beginning to affect the projected deliveries of the Ju 88 and, as mentioned, as a result of the wait for the DB 606, the He 177. Thus, production of the existing twin-engined Do 17 and old stalwart He 111 was extended. By January, as a result of the structural reinforcement to the design and the incorporation of larger, frontal engine radiators able to provide sufficient cooling, along with an increase in equipment, take-off weight rose from 25,000 kg to 29,000 kg. These 'extras' impacted on operational speed, which fell from 500 km/h to 460 km/h.

One positive note came on 24 February when the number of He 177 prototypes ordered by the RLM was increased to 12, mainly on account of Heinkel's earlier discussions with Junkers about a possible Jumo 212 and a new coupled engine based on a pair of Jumo 213s. It was foreseen that more prototypes would be needed to test the new engines.

Lieferplan No 11 was issued at the end of February 1939. Of a total planned number of 7748 bombers (a reduction from the 10,900 foreseen in Plan No 9),

just 199 He 177s were scheduled to be delivered at some point after 1 April 1939, as against 4063 Ju 88s, 2201 He 111s and 1258 Do 17s. On 16 March 1939, a Luftwaffe report mentioned ‘steady progress’ with the He 177.

During a visit to Rostock-Marienehe in late April, Udet told Heinkel that it was imperative that the He 177 V1 should be ready to commence flight testing by 30 August, regardless of whether the DB 606 was available in quantity or not. Notwithstanding this, and evidently with some confidence, the two men agreed a timetable that would see the He 177 fitted with the DB 606 by the end of August 1939, with the Jumo 212 by the end of January 1940, with air-cooled, two-row 18-cylinder BMW 802 radials by mid-April 1940 and with surface evaporation cooling by mid-June of that year. In terms of equipment, the He 177 V1 would be unarmed, the V2 and V3 were to be fitted with basic bomb-release gear and the V4 would have guns installed.

Among the RLM delegation accompanying Udet to the Heinkel works was the head of Department E2 (Flight-Testing) at the *Erprobungsstelle* Rechlin, Dipl-Ing Leutnant Carl Francke. After inspecting the plans, Francke noted that the cockpit area was too small and possessed restricted vision.

In August 1939, Göring summoned Milch, Udet and Jeschonnek to a meeting aboard his private yacht in order to discuss a ‘concentrated production programme’. Göring now gave top priority to the Bf 109, Me 210, Ju 88 and He 177, proposing that 800 examples of the latter should be completed by 1 April 1943. The pressure from Göring, along with Francke’s observations, may well have helped spur on the authorisation, on 20 September, for a He 177A-0 pre-production series that featured an improved cabin area and new bomb-release equipment. It was also planned to aid take-off with two 2500 kp rocket-assisted take-off units.

Francke’s opinions may also have been behind a memo drafted by Jeschonnek on 4 September addressed to Rechlin and other involved Luftwaffe departments in which he emphasised how important it was to press ahead with all haste on the development of remotely-controlled armament with respect to the He 177. Jeschonnek gave his agreement to the installation of a manned forward-firing gun in a ventral gondola (the A-*Stand*), a remotely-controlled, forward, dorsally-mounted barbette (B-*Stand*), an aft-firing manned gun position in the aforementioned ventral gondola (C-*Stand*) and a manned tail gun (*Heckstand*). According to Jeschonnek;

‘As no details are yet available concerning probable ammunition expenditure on the long-range sorties envisaged and it is not feasible to replenish in-flight

ammunition used by the remotely-controlled weapons, it is to be emphasised that the greatest attention must be paid to the allocation of space permitting adequate ammunition storage.

'As it would now seem that the Ju 88 will not attain its anticipated range with militarily useful performance, the rapid procurement of an operational bomber of great penetration range is a matter of urgent necessity. The rapid operational readiness of the He 177 would seem guaranteed by the cockpit concept. Conversely, the General Staff appreciates the difficulties in series production arising from the change-over from the original cockpit arrangement to that now envisaged, and for this reason it has been requested that the original-type cockpit arrangements be retained for the V-series aircraft, possibly introducing the new cockpit and armament system with the A-0 series.'

Somehow, miraculously, assembly work on the V1 proceeded well during the summer of 1939, as did engine-testing – so much so that Heinkel considered it likely the aircraft would fly that autumn. On 23 October, as Nazi Germany basked in its first Blitzkrieg victory, over Poland, Dipl-Ing Leutnant Carl Francke was assigned to Heinkel at Rostock-Marienehe to familiarise himself with the He 177 V1 in readiness for the aircraft's maiden flight.

A week later, Udet was once more with Heinkel at Rostock. Over glasses of brandy the Generalluftzeugmeister confessed to the aircraft designer that he had not reckoned with a war against Britain, but that the Luftwaffe general staff felt secure in its belief that the much-vaunted Ju 88 would be able to deal with the Royal Navy. When Heinkel asked Udet what would happen if the British moved their ships beyond the range of the Ju 88, he was told bluntly, 'We must bring the He 177 into mass production with all available means'.

CHAPTER TWO

TESTING TIMES

On a morning in late November 1939 – there is some debate as to whether it was the 19th or 20th – a dark-haired, wiry man with a film star pencil moustache climbed into the cockpit of the He 177 V1 at Rostock-Marienehe.

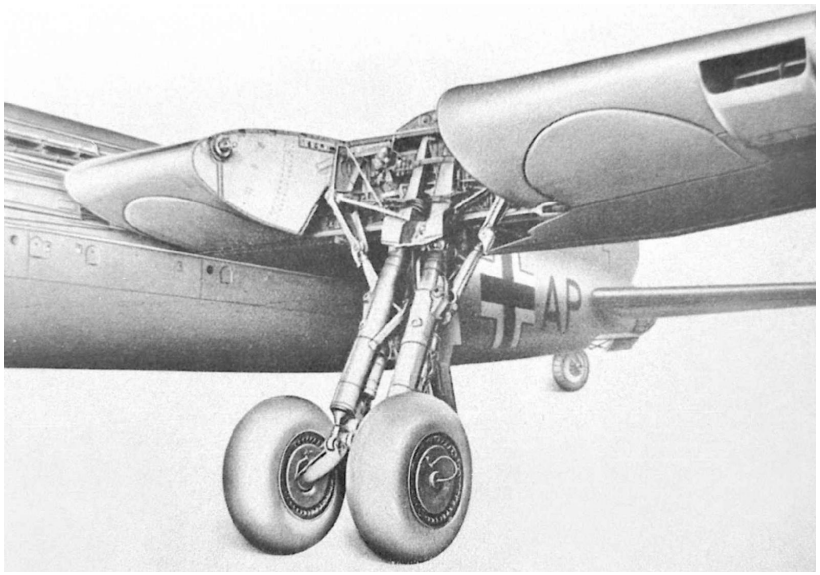
As head of Department E2 (airframes) at the *Erprobungsstelle* Rechlin, Dipl-Ing Carl Francke was already familiar with the new Heinkel and had few concerns about it. He was an experienced aviator who had flown as a member of the German competition team in the *Europa-Rundflug* air race in 1934 under the air ace Theo Osterkamp. In the summer of 1937, while Head of Rechlin's Department E7, he had also piloted the prototype Messerschmitt Bf 109 V8 and V13 in award-winning high-speed and climb-and-dive flights at the 4th International Flying Meeting at Dubendorf, in Switzerland. Later, as a member of the Luftwaffe, Francke had served as a test-pilot at the *Erprobungsstelle (See)* at Travemünde, where he became heavily involved in testing seaplanes as well as new types of fighter designs, and compiling the standard manual for flight-testing. Transferring to Rechlin, he test-flew several aircraft, including 'exotic' types such as the Focke-Wulf Fw 61 V2 autogyro, the Focke Achgelis Fa 223 V1 helicopter prototype and the Me 321, the world's largest glider.

The first prototype of the He 177, the V1 Wk-Nr 1770000001 CB+RP, lands at Rostock-Marienehe with Flugkapitän Fritz Schäfer at the controls. The aircraft flew for the first time on 11 November 1939 piloted by Carl Francke. Even then, the DB 606 engines overheated while in flight. It crashed a month later, on 11 December, but was repaired. The V1 suffered other mishaps during testing until it was eventually written off on 3 October 1941 following yet another crash

As contemporary German military aircraft went, He 177 V1 Wk-Nr 1770000001, coded CB+RP, was sizeable – 20.58 m in length with a wingspan

of 31.44 m and a wing area of 100 sq m, standing at 6.67 m. Empty, but with basic equipment installed, the He 177 weighed 13,720 kg when empty and had a loaded weight of 23,920 kg. For its maiden flight, which was taking place a little earlier than forecast, the unarmed V1 had been fitted with the DB 606 V5 and V6 engines, each coupled unit capable of producing 2300 hp.

Francke took off without problems and kept the aircraft's substantial, twin-wheeled undercarriage legs lowered throughout the duration of the 20-minute flight. An altitude of 2000 m was achieved, with a flight weight of 16,000 kg. Generally, Francke found little fault with the aeroplane. Indeed, he was impressed by its light handling characteristics. What criticisms he did have were directed at the brakes and the hydraulic pressure in the undercarriage, which he recommended should be lowered to ease landing shocks. Ventilation in the cabin was insufficient. He also suggested that a larger tail fin might help and that forces on the rudder were too high. But his main concern lay with the engines – specifically oil temperature, which rose to 120°C. As Ernst Heinkel admitted, 'This was the first sign of engine troubles which were never wholly overcome, and even now sufficient attention was not paid to the subject'.

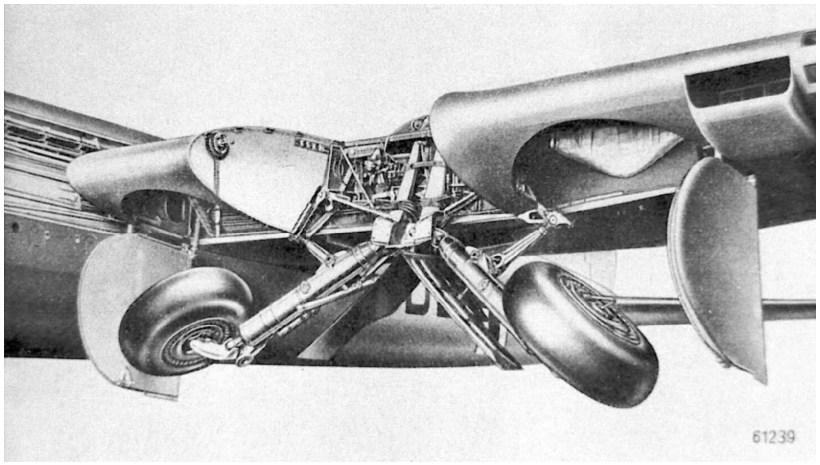


An illustration from a servicing handbook showing the fitment of the twin mainwheel undercarriage, lowered, in a He 177 – in this case A-01 Wk-Nr 0016 DL+AP

A second flight took place on 20 November, lasting just 14 minutes. There was cause for encouragement since most of the problems highlighted by Francke had already been ironed out to some extent, although the undercarriage legs retracted only very slowly and sudden oscillation was caused when an air brake

flap malfunctioned. For a third flight, Francke was accompanied by two test engineers. However, the aircraft had climbed to just 200 m when it suddenly began to vibrate after one of the undercarriage doors came loose and buckled under the wing.

Testing with the V1 continued in December. Between the 6th and the 18th, Francke flew the aircraft on six occasions, while Flugbaumeister Dipl-Ing Hans Friedrich Rieckert, also from Department E2, took over the controls for a seventh flight. Francke reported that stick forces were heavy and that stability in flight was still not as good as it could have been despite the introduction of larger elevators. The sixth test flight was abandoned as a result of a loss of oil, and in the following flight the airframe began to shudder inexplicably while the aircraft was in a glide at some 400 km/h. During the eighth test, on 9 December, defective undercarriage indicators resulted in an early stop. Two days later, light damage was sustained to the elevators, causing the Heinkel to be grounded. Testing did not resume for several days. Then, on the 17th, Francke was forced to land when the V1 suffered a failure to its electrics.



This illustration, also taken from a He 177 servicing handbook, shows how the mainwheels operated during retraction, with each leg retracting outwards in opposite directions into bays within the wing. The doors to the wheel bays would close when the gear had completed its retraction or when it was fully extended and on the ground

The second He 177 prototype, V2 Wk-Nr 1770000002, coded CB+RQ, is known to have taken to the sky from Rostock-Marienehe on 21 April 1940, although it probably made its inaugural flight some time before that date. This machine, which had, as Francke had suggested, a larger fin and rudder assembly than the V1, and the subsequent V3 were plagued by engine and undercarriage problems, vibration in the air and stability issues.

Flugkapitän Fritz Schäfer brings the He 177 V1 in to land at Rostock-Marienehe. This photograph shows the glazed nose, the considerable span of the aircraft's wings and the double mainwheel landing gear extended, which would retract in opposite directions when raised. The aircraft's tail fin area had also been enlarged by some 20 per cent following its first flight

On 24 April Dipl-Ing Rieckert carried out the first dive trial using the V3, which was marked with the civil code D-AGIG and had improved adjustment for its tail assembly. Ominously, the aircraft developed severe flutter in its rear control surfaces and crashed near Gehlsdorf, killing Rieckert and two personnel from Heinkel who were also on board. Inadequate balancing of the tail was blamed. As a result, the rudder and elevators were enlarged, the span of the tailplane increased in size by 1.5 m to 9.5 m and the whole assembly repositioned further back by 500 mm.

Two days later, the problem was engine failure again, when the V1 force-landed at Fassberg and its propellers were damaged.

In his memoirs, Ernst Heinkel reflected on the He 177 testing period and plans for early production;

'At impossibly short notice, without sufficient testing, mass production was ordered. Behind the demands and instructions from Berlin could be felt the nervousness of men who were no longer sure of themselves. The [Heinkel] Oranienburg and Weser-Flug factories were to undertake the building of the machines and to produce 120 aeroplanes monthly from the middle of 1940. I demanded that the development work at least should take place at Marienehe, where we had the necessary experience and means, without which it was impossible to produce such a new design. I was refused.'

Towards the end of March 1940, Udet and Heinkel met in Berlin. Restless and chain-smoking, according to Heinkel, Udet remarked, 'I hope we shan't have

any difficulties with the He 177. I've had quite enough trouble with the Ju 88. The 177's got to fly. We haven't another heavy bomber to fling against the British. The 177's got to fly. It must!'

Despite Udet's earlier proclamations, however, on 1 June 1940, as German forces rolled across northern France, an order arrived at Heinkel's office from the *Technisches Amt* signed by the Generalluftzeugmeister advising that in order to ensure priority of equipment for the 'frontline', he had decided to defer delivery of the He 177 by three months. Furthermore, monthly production would be restricted to just three aircraft and production at plants other than Marienehe was to be suspended until further notice.

Testing continued, but with fatal results. On 27 June 1940, the He 177 V2, flown by Fritjof Ursinus, crashed into the Baltic off Graal-Müritz from an altitude of 400 m while conducting minimum flying speed tests. Ursinus and his crew of three men from the Heinkel works were killed, and after an intensive search of the shore area and the water, the conclusion was that the crash had probably been due to an erroneously selected or malfunctioning propeller pitch setting.

The very next day Heinkel met with Fliegerstabs-Ingenieur Oberst Lucht of LC II of the *Technisches Amt* in Berlin. In a heated discussion, Lucht pointed out to Heinkel that although he foresaw the He 177 as being the Luftwaffe's standard, long-range maritime reconnaissance aircraft and bomber, others such as Junkers' Heinrich Koppenberg were agitating to 'kill off' the competing Heinkel once and for all in the wake of such crashes, so that the way would be clear for the planned Ju 288. This, despite the fact that throughout the summer of 1940, *Lieferpläne* 17 and 18 proposed monthly production rates of between 30 and 50 He 177s.

4 September 1940 saw the He 177 V4 fly, possibly for the first time, with test pilot Gotthold Peter at the controls. The aircraft, which was viewed as the assessment machine for series production, bore the Wk-Nr 1770000004 but no code, and it had been built with an enlarged tail assembly. Also, the bulge had been removed from around its bomb-bay and there was a greater fuel load, which meant an increase in flight weight to 24,820 kg. Over the coming months, the He 177 V4 would be tested extensively in aileron trials, as well as with ejector seats and a brake parachute.

He 117 V2 Wk-Nr 1770000002 CB+RQ, although the code had not yet been applied at the time this photograph was taken. From this angle the bomber's extensively glazed cockpit area is clearly visible, offering good vision for the pilot. Note also the size of the four-bladed propellers and, just visible, the exceptionally large tail Swastika. Like the other early He 177 prototypes, the V2 was plagued by numerous problems. It crashed into the Baltic Sea on 27 June 1940 as a result of propeller pitch failure. The aircraft was lost and its pilot, Flugkapitän Fritjof Ursinus, and his crew were killed

He 177 V5 Wk-Nr 1770000005 PM+OD also commenced flying in September 1940 equipped with 'emergency armament'. Essentially similar to the V4, it weighed an extra 150 kg, and during flight trials, which included shallow diving, attained a speed of 465 km/h.

On 11 December, Heinkel issued an *'Übersicht über die Entwicklung He 177'* (Overview of He 177 Development) in which it was stated that the V1 would be ready to fly again on the 17th, the V4 was continuing with its flight-testing, while the V5 was expected to be flight-ready again on 19 December and the V6 on the 18th. Indeed, He 177 V6 BC+BP, featuring reduced cockpit glazing and a larger bomb-bay, made its first flight that day, and after basic testing, carried out a series of bomb-bay door and armament tests. It was also the first prototype to be fitted with a 20 mm MG FF cannon in its nose, a 13 mm MG 131 machine gun in the forward part of the dorsal position, an MG 15 in the rear of the ventral gondola and further MG 131s in the *Heckstand* and in a small manual turret aft of the cockpit area. The aircraft would be based at Rechlin during the summer of 1940 before being handed over to IV./KG 40 for operational trials during the winter of that year. Later, the V6 received a larger tail assembly and was also installed with Daimler-Benz's first pre-production DB 606 engines, the A-1 (left) and B-1 (right), rated at 2700 hp.

The *'Übersicht über die Entwicklung He 177'* also called for the first Heinkels to be available for operations in February 1941. That month, the V6 joined newly completed V7 SF+TB in being assigned for operational trials with IV./KG 40 in France once preliminary tests had been concluded at Rostock, which involved automatic flight control trials. However, the V7 is not believed to have flown until 14 March, and when it did, it was fitted with MG 131

machine guns in nose and tail positions, with MG FF cannon in the forward ventral position and an aft-cockpit turret. After completing armament trials at the *Erprobungsstelle* Tarnewitz, both the V7 and the V6 would see service with IV./KG40 as training aircraft.

Flying for the first time on 14 March 1941 with Gotthold Peter at the controls, He 177 V7 SF+TB was fitted with a forward dorsal turret and carried armament of an MG 131 in the A-1-*Stand*, MG FF in the forward gondola, MG FF in a B-*Stand* dorsal turret and an MG 131 in the H-*Stand*. The aircraft is believed to have been used by IV./KG 40 at Bordeaux-Mérignac for a time for assessment and, later, as a training aircraft

He 177 V8 SF+TC would be the last dedicated prototype, joining the other prototypes in mid-1941. On 4 September it was delivered to Rechlin for engine tests, remaining here for just over a month before returning to Heinkel at Rostock-Marienehe, where it carried out dive tests. This aircraft was still known to have been with Heinkel as late as June 1943.

But before the V8 had taken to the air, the first pre-production series aircraft, He 177A-0 Wk-Nr 1770000016 DL+AP, completed its maiden flight on 7 February 1941, flown by Gotthold Peter. The nose had been redesigned and was flatter and squarer in shape. The aircraft was intended to carry a crew of five and be armed with a 7.9 mm MG 81 in the upper part of the glazed nose, or the A1-*Stand*, twin MG 81s in the B1 and C1-*Stand* and an MG 131 in the tail position. However, by the time of its inaugural flight, the guns and their mounting equipment had not been delivered, so the aircraft flew unarmed.

An armourer crouches on the top of a He 177's fuselage after removing a protective panel for the dorsal, remotely-controlled, electro-hydraulic FDL 131 *'Drehlafette'* barbette housing a double MG 131Z *'Zwilling'* (twin) gun. Behind the armourer can be seen the observation dome from where the gunner would have operated the guns

Gradually, throughout 1941, 35 A-0 aircraft were built by Heinkel at Marienehe and Oranienburg, and by the Arado Flugzeugwerke at Brandenburg-Neuendorf. Some of these machines passed through Rechlin, where they underwent various tests, but they were beset by problems associated with their engines. Notwithstanding these setbacks, on 15 August 1941, Major Edgar Petersen, one of the Luftwaffe's foremost anti-shipping commanders with operational experience gained over Narvik, the North Sea and the Atlantic flying the Ju 88 and Fw 200 and as *Kommodore* of KG 40, whose Condors were engaged in anti-shipping warfare over the Bay of Biscay, the eastern Atlantic and the North Sea, flew the He 177 V7. Having put on an acceptable demonstration for Reichsmarschall Göring near Paris, Petersen, a very skilled aviator, touched down late, but carried off a well-controlled ground loop. Göring, who expected

the aircraft's undercarriage to collapse, exclaimed, 'At last! An undercarriage that can take it!'

KG 40 would be the first operational Luftwaffe unit to receive the He 177, but at the end of August, Petersen was officially appointed *Kommando der Erprobungsstellen* based at Rechlin, taking up his duties in October. Here, he had jurisdiction for the Heinkel's continued testing and evaluation, along with overall control of four test centres. Petersen recalled that;

He 177A-01 Wk-Nr 0016 DL+AP – the first pre-production aircraft – made its inaugural flight on 7 February 1941, flown by Heinkel test pilot Gotthold Peter. The aircraft was finished in an overall grey, with an unusually large Swastika applied to its tail fin. Unfortunately, Wk-Nr 0016 collided with a Ju 52/3m while taxiing at Heinkel's Rostock-Marienehe works on 8 July 1941 and was destroyed in the ensuing fire

'In order to push the testing of the He 177 ahead, I was appointed commander of the test centres and transferred to Rechlin. Departing KG 40 and my colleagues was painful, but a consolation was the task of bringing the He 177 to combat readiness as soon as possible, and thus making it available to KG 40 at the front.'

Meanwhile, production of the He 177 ground on with difficulty for much of 1941. There were delays in deliveries of the remotely-controlled weapons and both wooden and duralumin propellers, the latter items being in scant availability at Rostock and Brandenburg – a source of great aggravation to Ernst Heinkel. But the greatest irritation to Heinkel remained engines, and he gave little concession to his sharp criticism of Daimler-Benz and the continuing problems in their functioning. Daimler-Benz defended itself by claiming that the DB 601s used in the DB 606s were overrated in terms of power and that the coolant system was still problematic.

By the autumn of 1941 the He 177 V1 was again being used for tests, but it suffered a heavy landing at Marienehe on 3 October that resulted in both of its undercarriage legs being sheared off due to excessive lateral forces, although the

crew managed to escape uninjured. That month, at least the V5 did get fitted with engines and a revised tail assembly, while the V8 remained at Rechlin.

In an unexpected and worrying move, in January 1942 the RLM ordered all He 177s grounded. It transpired that a supplier of Daimler-Benz had used aluminium rivets instead of duralumin ones on the joints between the reduction gears and the propeller shafts. Despite testing being reinstated, after only a short time, Generalfeldmarschall Milch, who had assumed the post of Generalluftzeugmeister after Udet had committed suicide in November 1941, once more ordered the Heinkel fleet to be grounded, again due to engine problems.

Dipl-Ing Walter Baist was responsible for engine testing the He 177 at Rechlin at this time. In his view, the engines had been located so close to the leading edge of the wing that there was very little room to house the complex tangle of fuel and oil pipes and instrument and electrical cables. As he recalled;

The eighth He 177 prototype, coded SF+TC, flew for the first time on 24 April 1941 with Gotthold Peter at the controls. It was subsequently used to test wooden and metal propellers, various flap configurations and de-icing systems. The aircraft was based at Rechlin for just over a month from 4 September 1941 for engine trials, after which it returned to Heinkel at Rostock-Marienehe. The He 177 is seen here while undergoing an assessment by the Luftwaffe, possibly at the *Erprobungsstelle* Rechlin or with IV./KG 40. At one stage, it was fitted with a mock-up rear dorsal turret. The bomber is known to have still been at Rostock in June 1943

‘The maintenance difficulties can well be imagined. Apart from this “sardine can” arrangement, as we called it at Rechlin, the fuel and oil pipes leaked at the connection points and the “sardine can” was frequently swimming in fuel and lubricant.’

In addition, at altitude, the oil foamed up, adversely affecting lubrication, the lack of which resulted in the disintegration of the connecting rod bearings that duly broke through the engine casing. As a result, oil drained on to the red-hot exhausts, which frequently resulted in fire. By the time tests had been completed with the He 177A-02, Baist recommended the lengthening of the engine mounts

by 10 cm, relocation of the fuel and oil pipes, installation of a firewall, the oil tank moved to a less volatile position and the complete redesign of the exhaust system.

Also at Rechlin serving as a test pilot was Peter Riedel, a pre-war gliding champion who, in the pre-war and early war years, had served as the German military attaché in Washington, DC. He had also been asked by Heinkel to produce an independent report on American bomber aviation and a comparison of its aircraft with the He 177. Riedel had witnessed at first-hand how dangerous a machine the new Heinkel bomber could be. On 2 February 1942, early production He 177A-1 Wk-Nr 5191 BU+FU crashed at Rechlin while carrying out stalling tests, killing pilot Oberleutnant Walter Flinsch and his flight engineer. Riedel recorded how;

'A farmer heard aircraft engines and looked up to see the He 177 come out of the clouds spinning wildly. There was an enormous crash when it hit. Walter Flinsch and his mechanic tried to escape. The mechanic got out, but the escape hatch was in the nose of the aircraft and as he left he was struck by one of the propellers. Both his legs were severed. Even though his parachute opened, he was dead when he was found among some trees. Walter's parachute never opened. His body lay on its back 50 m from the wreck of the aircraft, which had fallen near Fürstemberg. Ejector seats would probably have saved them both.'

More crashes would follow at Rechlin. On 18 February, for example, A-011 GA+QT, flown by Flieger-Hauptingenieur Heinrich Wiegand, came down near Müritz after an engine fire caused by leaking fuel. Although Wiegand was killed, the rest of the five-man crew were able to bail out.

In early 1942, the recently promoted Oberstleutnant Petersen visited Heinkel at Rostock and was informed candidly by members of the workforce that Professor Heinkel was tending to dedicate all his time to the He 111 at the expense of factory capacity for the He 177. This was perhaps not surprising given the fact that monthly production had been scaled back to just five aircraft while all its inherent problems were being solved. For his part, in his memoirs, Heinkel was emphatic;

'The faults were comparatively easy to overcome because I undertook certain reinforcements and dispensed with the wing cooling. But once more it was the insistence upon dive-bombing performance which made these difficult too. Although the reinforcements we had incorporated were more than adequate for the normal requirements of a heavy bomber, this insistence upon dive-bombing demanded such dimensions in all spars and ribs that all the weight calculations

ultimately had to be scrapped. Even after Udet's death, a considerable number of the men in the *Technisches Amt* and on the General Staff – particularly a group of young officers who were obsessed with dive-bombing – could not be persuaded to alter these specifications, despite the demands from the frontline for heavily armed, long-range machines.'

On 24 March 1942 a He 177 crashed at the Rostock works with Gotthold Peter at the controls. While at 5000 m, the engine revs had suddenly fallen and oil pressure dropped, and then as a dazed Peter attempted to land, the aircraft's right engine failed. After repairs, the aircraft was the only prototype left flying for four months.

It was not until May that Reichsmarschall Göring finally paid a visit to Rechlin to take a look at the problematic He 177 for himself. But when he was shown the DB 606 coupled engines, he lost his patience, his recollection being stenographed;

'I have never been so furious as when I saw this engine. Surely it must be as clear as daylight! How is such an engine to be serviced on the airfields? Nobody mentioned this hocus-pocus with two welded-together engines to me at all. A charming surprise that was for me.'

In addition to Göring's experience, two other high-level personalities were witness to just how unready the He 177 was when, on 19 June, Armaments Minister Albert Speer and Generalfeldmarschall Milch visited the secret rocket test centre at Peenemünde to observe a launching of the A4 rocket. While there, they also happened to observe a He 177 take off on a test flight loaded with 4000 kg of bombs. The aircraft disappeared over the horizon, but then banked sharply to the right and crashed into the ground from a height of 150 m, killing the crew. Petersen subsequently advised Milch that an investigation had revealed that a coupling sleeve had broken on the propeller shaft.

On 16 July another Heinkel, A-013 Wk-Nr 0028 GA+QV, crashed during dive tests at Rechlin when the pilot pulled out of a dive too sharply and a wing broke away. Luckily, only one member of the crew was killed, the rest managing to bail out.

By the spring, work was also underway on the He 177A-2, which was intended as a long-range reconnaissance variant of the A-1, fitted with large and powerful cameras. Range was projected at 5800 km, increasing to 9500 km with in-flight refuelling. A report of 27 April stated that the type's maximum permissible shallow dive speed of 750 km/h would make it very suitable for

reconnaissance missions over the Soviet Union. However, no further work seems to have been progressed on this variant.

Echoing Ernst Heinkel, Peter Riedel recalled that by 1942 the He 177 was ‘required to be capable of dive-bombing, launching torpedoes against ships and doing long-range reconnaissance flights at high altitudes. Hence it must fly fast and high for the reconnaissance, low and slow for torpedoing and be extremely strong for the dive-bombing. Every change meant more delays, more complications, more structural weight’. That year, the correspondence at the Heinkel factory related to the testing and alterations on the He 177 filled 56 files.

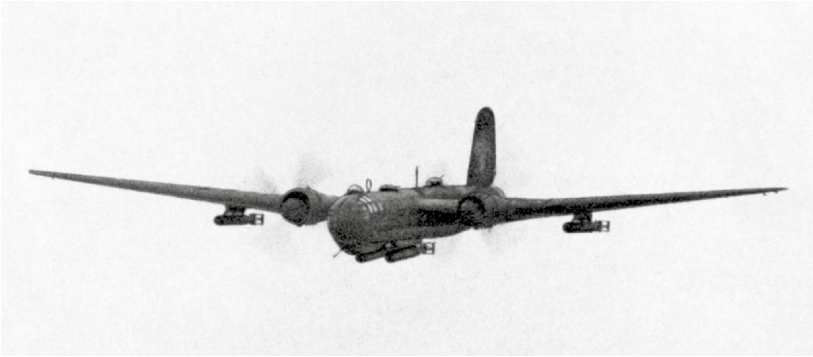
However, the reality was that no matter how much testing was undertaken on the He 177, the value and success of a combat aircraft design could only be truly assessed in operational service trials or in actual combat. The He 177’s time would have to come soon, no matter how ready it was.

CHAPTER THREE

SERVICE DEBUT

In early 1942, the Luftwaffe's main long-range maritime strike aircraft was the Fw 200 Condor, an elegant, adapted airliner which equipped the *Stab*, I., III. and IV.(Erg.)/KG 40 based operationally at Bordeaux-Mérignac, in western France, with training and replenishment taking place in southern Germany. These *Gruppen* had deployed the Condor off the coast of Norway and over the Atlantic and Bay of Biscay with some success since its introduction in the spring of 1940. Aside from offensive action against Allied shipping, the Fw 200s performed the additional roles of maritime reconnaissance and 'shadowing' convoys for the U-boats.

The principle problem with the Condor, however, was in modest number of airframes available to the Luftwaffe. Frontline units equipped with the Fw 200 also expressed a desire for a stronger, more purpose-built aircraft, better suited for anti-shipping work and able to operate with torpedoes and the latest air-to-surface weapons then under development. As Edgar Petersen recalled;



A dramatic view of what is probably a test-run of a He 177A-3/R7 sub-variant intended to carry four 750 kg LT 5 aerial torpedoes from ETC racks – only three A-3/R7s are believed to have been built. The aircraft was armed defensively with a standard A-3 range of weapons, specifically the MG 81, FDL B 131/1A, MG FF, MG 131 or MG 151 guns, and was capable of carrying two torpedoes externally beneath the centre fuselage and one under each wing outboard of the engines. The LT 5 had a range of 3000 m and a speed of 33 knots

'In view of the increasing enemy defence, our great hope was the He 177 with which KG 40 was to be equipped. This aircraft was considerably faster [than the Fw 200], carried more bombs and had a high firepower for defence against fighters consisting of three 13 mm MG 131 machine guns. But the He 177's appearance in the frontline was delayed again and again, as there were

constantly setbacks during testing, the main reason being engine fires caused by the double engine. In the Luftwaffe, the aircraft was nicknamed the "*Reichsfeuerzeug*" ["Reichs cigarette lighter"].'

Two of the few aircraft actually available to Luftwaffe crews by early 1942 were the He 177 V6 and V7, which were despatched initially to Lechfeld and then Orléans-Bricy, where personnel of 10.(Erg.)/KG 40 were able to familiarise themselves with their future mounts. Generally, the bomber men found the Heinkel's handling characteristics to be good, although the aircraft were subjected to continual modifications and adjustment to airframes and engines.

On 27 January 1942, Hauptmann Rudolf Mons was appointed to command a new unit, *Erprobungsstaffel* 177, which was established at Rechlin-Lärz with the aim of assessing the He 177 for operations. Mons was an Austrian, born in Vienna on 2 October 1914, who had been awarded the Knight's Cross on 18 September 1941 while flying Fw 200s with 3./KG 40. By the time of his award, Mons had been credited with the sinking of 63,000 GRT of shipping and with damaging a further 32,000 GRT during the course of 51 missions. He was then assigned for a brief period to the RLM's *Technisches Amt*, where he became an adviser on long-range bomber matters. Mons devised one plan whereby He 177s would be used to attack water reservoirs in Scotland and Northern Ireland. It was intended that the bombers would fly from bases in western France out into the Atlantic, before turning to attack from the west, but the idea was rejected by the RLM.

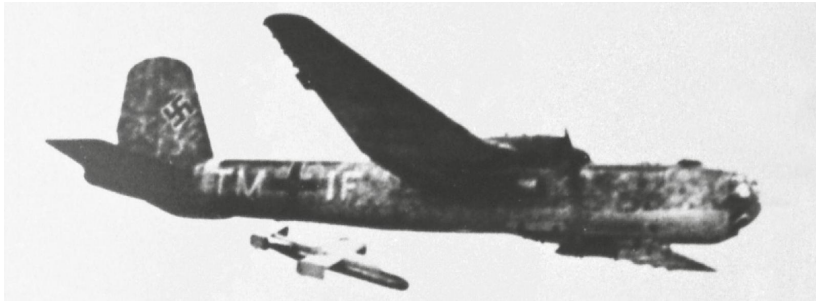
In connection with his position, however, at the end of January 1942, or the beginning of February, Mons undertook a long-range/endurance flight in the He 177A-07 lasting 12 hours and covering a 4700-km course from Rechlin to Bordeaux, then east to Warsaw and south to Munich. All seems to have gone well.

Once active with a single He 177A-0 and four crews, the *E-Staffel* 177 engaged in comparison flights against captured British aircraft on 11 February that demonstrated favourably the Heinkel's performance capability. Mock attacks against a He 177 were made using an Fw 190 and a Bf 109, and following these trials Mons requested that the aircraft's tail armament be improved. The unit also devised tactics for deployment against enemy shipping and was charged with carrying out dive-bombing trials and evaluating the *Lotfe* 7D bombsight. *E-Staffel* 177 was further tasked with developing tactics for the employment of the anticipated Henschel Hs 293 and Ruhrstahl PC 1400 X

(known as '*Fritz* X') guided bombs and aerial torpedoes for when they became available in quantity.

A He 177A-3 of IV.(Erg.)/KG 40 taxies out across the snow at Brandis for an unarmed training flight in early 1943. The aircraft's original code has been overpainted and a large, white '32' applied to the rudder for easy air-to-air identification. The *Gruppe* was under the command of Major Roman Dawczynski at this time, and it operated from various German and French fields, with the aim of supplying operationally ready crews to I. and II./KG 40

Deliveries of aircraft to the *Erprobungsstaffel* were slow, however, and by August only 372 hours of flying time had been achieved using just eight He 177A-0s. A total of 102 Heinkels had been completed by the late summer of 1942, although only 33 had been accepted by the RLM, with far fewer than that actually making it as far as Luftwaffe service.



A Blohm und Voss L 10 glider torpedo-carrier attached to an LT 5 torpedo falls away from He 177 V31 (an A-5) Wk-Nr 550202 TM+IF during a trial flight at the *Torpedwaffenplatz* (torpedo development and training centre) at Gotenhafen in early 1944. The L 10 meant that a torpedo could be launched from a greater altitude and at greater range, enabling a carrier aircraft to break off its attack at a safer distance. He 177 V31 was also involved in testing the Blohm und Voss L 950, a more highly-powered torpedo-carrier, its designation stemming from the weight of the carrier (200 kg) and the weight of the torpedo (750 kg)

By mid-1942, the *E-Staffel* 177 had suffered the loss of three of its aircraft in crashes and had only two serviceable pre-production He 177s available at one

point. This situation resulted in much intended testing being delayed, especially glide- and dive-attack trials. Paradoxically, because of the overall slow ongoing development and enhancement of the He 177, now known by the sobriquet *'Greif'* (Griffin), the *Staffel* remained in being for a relatively long time – at least long enough to allow a thorough assessment of the Heinkel's prospects as a maritime reconnaissance and anti-shipping aircraft. Both Petersen and Mons were forced to conclude that because of its relatively limited depth of penetration at an estimated 2100 km and its maximum speed of 360 km/h with a bomb load of 2000 kg, the He 177 did not measure up as an effective anti-shipping machine.

Three of *Erprobungsstaffel* 177's Heinkels at Rechlin in 1942. Deliveries of aircraft to the unit were slow, but from the few Heinkels it received, the *Staffel* was able to conclude that the early He 177A-0 and A-1 variants were not fit for purpose in terms of anti-shipping operations

Based on the *E-Staffel*'s performance to date, Petersen estimated that it would take at least six months to bring a new *Gruppe* to operational readiness, allowing for sufficient training of crews on what was perceived to be a complex and problematic aircraft. By October 1942, however, some diving flights had been carried out and Hauptmann Mons was at least able to report that he felt the He 177 just about capable of carrying out short-run attacks at angles of up to 70 degrees, but that, in practice, because of the persisting weakness in the wings, they should be limited to 40 degrees inclination. Even level attacks were viewed with caution, but it was accepted that the planned extension to the fuselage in production aircraft should rectify concerns. Mons was more optimistic when it came to making low-level attacks, although he warned of high losses from ground fire as a result of the poorly protected crew accommodation areas, engines and fuel tanks.

Lacking its forward gondola MG FF (A-2 *Stand*), He 177A-1 Wk-Nr 5215 VE+UO flies low overhead while on the strength of *Erprobungsstaffel* 177 in 1942. On 21 December of that year, the *Staffelführer*, Hauptmann Rudolf Mons, and his crew were forced to bail out of the aircraft when the right engine failed while undergoing a test flight from Rechlin. The aircraft was virtually destroyed in the ensuing crash

Otherwise, general handling at low speeds and during landing was good, and he even praised the DB 606 for its equal power-loading, although servicing the engines remained troublesome. The *E-Staffel* further reported that its DB 606s were achieving just 130 flying hours before needing a major overhaul or replacement.

When *E-Staffel* 177 took delivery of its first He 177A-3 bombers, they were well received. This variant had an extended fuselage (by 1.60 m) and increased armament comprising a single MG 81 (A1 *Stand*/nose), a 20mm MG FF (A2 *Stand*/forward ventral gondola) and MG 131s in two dorsal turrets (FDL B 131/2A barbette forward and a single weapon aft), one at the C-*Stand*/rear ventral gondola and an MG 131Z *Zwilling* (twin) in the H-*Stand* (*Heckstand*)/tail. The He 177A-3/R2 would replace the H-*Stand* MG 131 with an MG 151.

The *Erprobungsstaffel* 177 would continue with testing and assessing the Heinkel, to one degree or another, until it was eventually disbanded in late September 1943.

In another development, on 20 May 1942, 10.(Erg.)/KG 40 was redesignated 15./KG 40, although the bulk of the new V. *Gruppe* of which it would be a part would not be formed officially until January 1943. 10.(Erg.)/KG 40's small number of He 177s, however, was transferred to Brandenburg-Briest, where they would form the nucleus of a new *Fernkampfstaffel* (long-range bomber squadron). In July 1942 the personnel and aircraft of this *Staffel* were used to form the basis of another new long-range wing, this time, theoretically, of at least *Gruppe* strength, I./*Fernkampfgeschwader* 50. I./FKG 50 comprised a *Stab* and three *Staffeln*. The unit was established under Major Kurt Schede, an officer who, in 1940, had been assigned for *Generalstab* training at the *Luftkriegsakademie* at Berlin-Gatow. Schede's only practical qualification for leading this embryonic, long-range bomber unit seems to have been his pre-war attachment to 2./KG 254 and early wartime service with 2./KG 54. Other than that, he had commanded an airfield servicing company and been assigned to the staff of V. *Fliegerkorps*.

Wearing a lightweight summer flying suit and helmet, gloves, inflatable life jacket, parachute harness, oxygen mask (not visible) and corrugated hose, the rear gunner of a He 177 climbs into the narrow confines of the *Heckstand*, or H-*Stand*, tail gun position. Although this is probably an A-3 variant fitted with a 20 mm MG 151 cannon, the basic design and shape was the same for the A-1

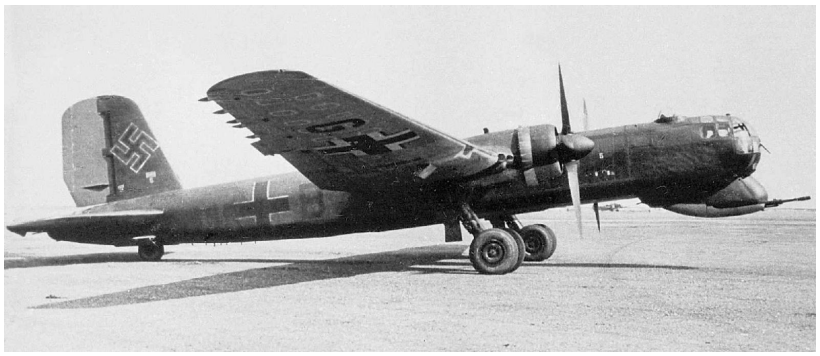
Shortly after its formation, I./FKG 50 received some new He 177A-1s and Schede was given two fundamental assignments. Firstly, to oversee the strengthening of the wings on all newly-delivered and ostensibly 'completed'

Heinkels, and secondly, to explore the practicalities of a new He 177A-1 *Zerstörer* (‘Destroyer’ or heavily armed fighter).

Groundcrew of I./FKG 50 prepare to cover or remove a tarpaulin from the upper nose section of a He 177A-0 on a grey day at Brandenburg-Briest in 1942. The 20 mm MG FF cannon in the early style housing beneath the cockpit and to the left has been removed and the aircraft’s bomb-bay doors are open

He 177 *ZERSTÖRER*

From early 1941, as the war in the Atlantic Ocean intensified and there was an increase in the number of Allied reconnaissance aircraft tasked with seeking out German U-boats, as a counter-measure the RLM issued an order to conduct trials with He 177s armed with heavy cannon. It was intended that aircraft fitted with such armament would be used to range out into the Atlantic to search for and destroy enemy aircraft. It was also planned that the Heinkels were to attack USAAF four-engined bombers making their way across the Atlantic to serve with the Eighth Air Force in Britain.



He 177 V12 GI+BL, equipped for the *Zerstörer* role with a forward gondola fitted with a 30 mm MK 101 cannon. This photograph may have been taken at the *Erprobungsstelle* Tarnewitz during test-firing

In this regard, a small number of He 177s were to be fitted with either one or two 30 mm MK 101 cannon in the lower nose or A-2 *Stand*. Early trials were conducted with the V12, WK-Nr 15151 GI+BL, as the A-012, and it was foreseen that a series of 12 A-1-based machines would be produced following the conclusion of trials. A wooden mock-up was constructed at Rostock-Marienehe and the RLM gave its approval to proceed officially on 4 March 1942, using a pair of MK 101s in a specially designed gondola, with the sub-variant being known as the He 177A-1/U2. The *Zerstörer* was to also be fitted with jettisonable fuel tanks installed in the bomb-bay, but this was never actually done.

The forward fuselage of a He 177 of I./FKG 50 loaded and lashed onto a purpose-built low-loader trailer. While an extremely useful piece of equipment, it is doubtful the trailer was available in great numbers. Here, the wings have been removed at their roots, as has all armament, for the purposes of transportation. The fuselage would have been lifted on and off the trailer with a gantry crane

It was intended that the first four aircraft would be delivered to *Erprobungsstaffel* 177 in June 1942, but this was revised because of the strain on that small unit, and instead conversion packs were sent to Major Kurt Schede's I./FKG 50 at Brandenburg-Briest. However, progress was impeded by conflicting reports issued by Schede and by the E-5 Abt. of the E-Stelle Rechlin on the resulting loss of speed arising from the installation of the cannon. It is believed that 11 or 12 A-1/U2 *Zerstörer* were finally completed and some limited firing tests were carried out by I./FKG 50 at Ludwigslust during 1943, but ultimately they never made it into operational service.

In respect to the organising of his unit, Schede received great assistance from the *Kapitän* of 1. *Staffel*, Hauptmann Heinrich Schlosser, who had been awarded the Knight's Cross on 18 September 1941 for his personal involvement in sinking 55,000 GRT of enemy shipping while flying the Fw 200 with 2./KG 40. Schlosser had first learned to fly gliders in 1929 and later trained at the *Deutsche*

Verkehrsfliegerschule at Schleissheim and Braunschweig. He joined the Luftwaffe in 1936, and on the outbreak of war served in the Polish campaign with a long-range reconnaissance unit, before becoming an instructor. He was posted to KG 40 in May 1940 and took part in anti-shipping operations off Norway and over the Atlantic.

In August 1942, I./FKG 50 received a small number of He 177s modified with dual controls. With Schlosser's considerable instructor and operational expertise, he was able to train up the *Gruppe*'s pilots. A number of long-distance flights were carried out in an operational configuration, but they revealed that the He 177 was capable of a depth of penetration of only around 1800 km. Furthermore, the average speed of 340km/h was 50km/h lower than that achieved by the He 177A-0s of the *E-Staffel* 177. Several crashes ensued, often for reasons unknown, and by the autumn Schede was forced to report to Petersen that the aircraft was not suitable for operations in its 'present form'.

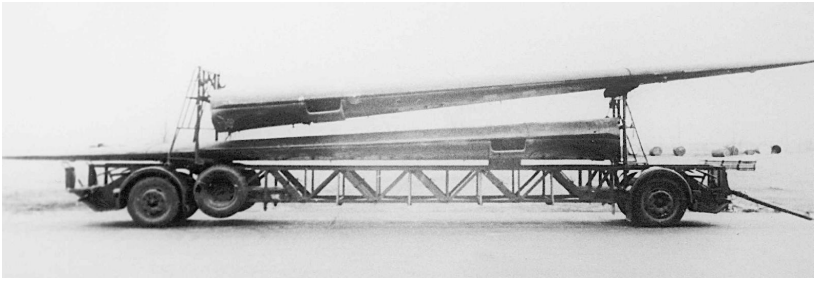
Notwithstanding this, in November, a 3. *Staffel* was formed and Schede had allocated the airfield at Zaporozhye-Süd, in southeast Ukraine, as a suitable base for trial operations by up to 12 He 177A-1s in the East.

Meanwhile during that summer, and as one of the main thrusts of the offensive in Russia, the German 6. *Armee* had been fighting and advancing along the 'Donets Corridor' to the west of the River Don. The aim was to continue to push forward and to reach the great westward bend of the River Volga, on which lay its target – the city of Stalingrad. The advance had started off well, sweeping through successive Soviet Fronts and taking significant territory in the Caucasus, ahead of which lay the oilfields that Hitler wanted so badly.

Since early July, the air units of *Luftflotte* 4, under the command of Generaloberst Wolfram *Freiherr* von Richthofen, had rendered effective support to the ground forces. But encouraged by his relatively quick territorial gains, Hitler gambled and blundered. He decided to split Army Group South and order it to undertake two simultaneous offensives, one against Stalingrad (Army Group B), which had previously been a low priority, and another against the Caucasus (Army Group A). In adopting this plan, German land and air fighting strength was weakened and, eventually, a large and vulnerable gap opened up between the two army groups. *Luftflotte* 4 found itself with an almost unmanageable area of operations.

By mid-November the southern sector of the German front stretched from Voronezh in the north to Elista and Essentuki in the south, curving back to Novorossisk on the Black Sea – a vast area of conquest taken in just six months.

In the centre of this line was Stalingrad, most of which 6. *Armee* had taken in fierce fighting in October. Indeed, by mid-November *Oberkommando der Wehrmacht* (Supreme High Command of the Wehrmacht) believed the city to be ‘practically conquered’. Some 6.5 km of the Volga bank had been secured and the Russians pushed back to the fortified river bank, with their command sliced in two. However, on the morning of 19 November, as Hitler and his generals were distracted by the *Torch* landings in North Africa, the Soviets launched a counter-offensive (involving more than one million men) that was designed to trap 6. *Armee* within the shell-shattered ruins of Stalingrad. By 23 November the encirclement of 6. *Armee* was complete when the Soviet southwestern and Stalingrad Fronts met near Kalach, locking up 20 German and two Rumanian divisions totalling some 280,000 men.



Here, the wings of a He 177 have been loaded and secured to a low-loader. The transport would have had to have been effected with some care

The Luftwaffe Chief of Staff, Generaloberst Hans Jeschonnek, gave his assurance to Hitler that an airlift could be set up and sustained to keep the trapped army adequately supplied, as long as both transport and bomber aircraft could be deployed and airfields both inside and outside the entrapped area could be maintained. Jeschonnek believed, genuinely but wrongly, that such an operation would be temporary until such time that either the army broke out or a relief force broke through. What he did not anticipate was an airlift lasting eight weeks mounted in appalling weather.

Close-up of the nose of a He 177A-1, possibly from I./FKG 50, showing the forward defensive armament of a cockpit-mounted 7.92 mm MG 81 machine gun and 20 mm MG FF cannon in the early style housing. Note the crew access hatch is lowered and a ladder is visible, and a rear view mirror has been fitted above the pilot's position

For the next two months, as the freezing Russian winter did its worst, amidst the harshest of conditions, Luftwaffe transport and bomber *Gruppen*, equipped mainly with Ju 52/3ms and He 111s, flew hundreds of sorties to both land, and then air-drop, supplies into snow-shrouded Stalingrad, as well as to evacuate wounded personnel while it was still possible.

By the second week of January 1943, however, the key airfield of Pitomnik, within the Stalingrad pocket, had been lost and only 90 tons of supplies had been dropped between the 17th and 23rd. With increasing desperation, the Germans turned to the long-range He 177s of I./FKG 50 as 'emergency transports'.
By December 1942, the *Gruppe's* strength stood at 33 Heinkels, including 20 A-3s, of which only ten were serviceable. By then, this small number of aircraft had managed to attain 290 flying hours, most of which had been taken up by bombing and conversion training. Despite this, only nine crews had been fully familiarised, mainly due to adverse winter weather. Nevertheless, from

13 January, Heinkels began to fly out of Brandenburg-Briest for Zaporozhye-Süd. Ultimately, it is believed that nearly 30 He 177s eventually flew to the Eastern Front under the command of Major Schede, these aircraft having been fitted with the *Rüstzustand* A – a supply-dropping modification in the bomb-bay. A reserve of DB 606s was created for I./FKG 50 by stripping engines from 50 newly manufactured aircraft.

Conditions at Zaporozhye-Süd were as bad as had been feared, with hangar accommodation for only five Heinkels. Furthermore, transporting the unit's equipment from the railhead amidst extreme temperatures and deep snowdrifts proved very challenging. Moving the Heinkels to a 'suitable' dispersal took half a day, despite the availability of a tractor and men. Soon, there were ominous signs, such as when a connecting rod in an engine of one He 177 broke through its casing, setting the engine on fire. But, somehow, by 19 January, 26 Heinkels had made it to Zaporozhye-Süd. However, Generaloberst von Richthofen's headquarters remained unimpressed, noting that the He 177s 'eat too much fuel and carry too little'. Indeed, Generalmajor Martin Fiebig, commander of VIII. *Fliegerkorps*, whose units were providing air support to the Stalingrad sector, noted in his diary on 14 January following a call from Schede;

'Report from the *Kommandeur* of the He 177 *Gruppe*. In total there are 30 Heinkels, of which ten are out of service. This type carries nothing, only air-dropping using 250 kg containers, which means actually 1120 kg using 4000 litres of fuel.'

Snow coats the uppersurfaces and propeller blades of He 177A-1 E8+HL of I./FKG 50 in Russia in late 1942. The intake covers fitted to the wing leading edges bear the aircraft's individual letter, and the unit's emblem adorns the nose in the customary position

The *Gruppe*'s first operation was attempted on 13 January using Oberleutnant Lawatschek's He 177 Wk-Nr 5252 E8+FK, but it crashed on its return when both a fuel pump and the de-icing system on the horizontal stabiliser failed. On

the 15th, Generalmajor Fiebig simply noted, ‘Difficulties with the He 177’. The following day Major Schede led a formation of five He 177s to Stalingrad to drop supplies, but two aircraft had to return because of engine and technical issues. Worse was to come when the *Gruppenkommandeur* was killed when his Heinkel, Wk-Nr 5233 E8+FH, crashed in flames near Poljakawa while returning from dropping supplies over Stalingrad. The newly-promoted Major Heinrich Schlosser took over command of the *Gruppe* from Kurt Schede.

Schlosser’s successor as *Kapitän* of 1./FKG 50, Oberleutnant Will, together with his crew, was fortunate to be able to escape his burning He 177 Wk-Nr 5242 at Zaporozhye on the 17th when it was attacked by enemy aircraft, while another He 177 was lost when two of its engines caught fire 100 km west of Stalino, the crew being forced to take to their parachutes. The next day, a lone He 177 was attacked by a large group of Soviet fighters for 40 minutes. The Heinkel’s gunners gave a good account of themselves, claiming one enemy aircraft shot down and inflicting sufficient damage to two others so that they were forced to break off their engagement.

Mechanics remove a protective tarpaulin from the starboard engine of what appears to be a He 177A-1 belonging to I./FKG 50 during the freezing Russian winter of 1942/43, when the Heinkel bomber was used during the ill-fated relief attempt at Stalingrad. Whilst in-theatre, most maintenance work on the *Gruppe*’s Heinkels had to be undertaken in the open, with groundcrew exposed to the elements, due to a lack of sufficient shelter for such large aircraft

By now conditions were becoming critical. On the 19th, a number of He 111s managed to land at Gumrak, the last airfield still functioning within the pocket, while others dropped their supplies. One general recorded, 'Artillery fire covers the field. Landing is difficult, but possible.' That day eight He 177s went out to drop supplies, but because of poor visibility all the aircraft had to turn around without executing their mission.

Oberleutnant Lawatschek experienced another mishap when the tail assembly of Wk-Nr 5241 collapsed during landing at Kirovograd, having caught the hangar roof on 20 January. The aircraft took off the next day for Zaporozhye, but it crashed on landing there, killing four of its crew.

By this stage another Luftwaffe commander noted that at Gumrak 'no equipment was available for snow removal, ground-levelling and the removal of aircraft wreckage and other debris. Everything is done in a makeshift manner with a few trucks and with manual labour – that is, shovels in the hands of exhausted men'.

It was quickly realised, however, that the He 177, having made some 20 successful supply sorties, was totally unsuitable for the task to which it was assigned. From the 24th, the *Gruppe* was diverted to carry out bombing sorties under the jurisdiction of *Luftflotte* 4. Tactically, the Heinkels were to be directed by VIII. *Fliegerkorps* against enemy concentrations on the 'western front' of the Stalingrad *'Festung'* (fortress). Thus for the next four days, the He 177s bombed targets around the city, including one mission carried out with Ju 88s of KG 51 in which 128 SD 50 bombs were dropped by five He 177s in the Pitomnik area. Further bombing operations were carried out, as well as the occasional reconnaissance mission for He 111s dropping supplies, but these resulted in additional losses accruing.

27 January was an especially black day. Feldwebel Karl Ludwig was killed in Wk-Nr 5245, as was Leutnant Karl Häfele in Wk-Nr 5263, and the He 177 flown by Oberleutnant Spohr was also lost. The next day saw the *Gruppe* fly 'in support of Sixth Army' as directed by VIII. *Fliegerkorps*. Targets were Soviet gun batteries along the Volga and south of Tsaritsa, as well as airfields, with alternative targets listed as the Stalingrad-Salsk railway line and Tatsinskaya and Morosovskaya airfields. Wk-Nr 5240 was damaged by fighters during the day's operations, taking 18 hits to its control surfaces, ventral gondola and propeller, but it still managed to make it to the airfield of Kalinovka. On the 29th, Wk-Nr 5180 was damaged while being flown by Oberfeldwebel Uhlig.

Only around 13 bombing sorties had actually been mounted by 30 January, by which day Generalfeldmarschall Milch, who had been ordered by Hitler to assume direct control of the troublesome airlift, requested the Luftwaffe Command Staff by teleprinter that the remaining He 177s be withdrawn immediately as a result of ‘six bad accidents within 14 days’.

On the 31st, Major Schlosser drafted a report on the performance of the He 177 in Russia. He accepted that while the Heinkels had proved themselves as fast, heavy bombers, their Achilles heel were their volatile engines, which had resulted in the loss of five aircraft, or a casualty rate of 26 per cent. According to Schlosser;

‘During operations the engines proved to be the most troublesome part of the aircraft. They are also extremely difficult to maintain and service. The most recurrent fault to endanger flight safety and operations was leakages. Despite the most careful servicing and testing, leaks occur regularly, causing sudden in-flight fires. In the case of fire the cockpit fills with smoke immediately, making the reading of instruments impossible. The *Gruppe* has lost at least two aircraft through in-flight fires during the last 14 days, including one total loss as well as almost certainly two more aircraft which failed to return. Due to the location of the engines to the rear of the pilot, fires are generally not discovered until too late. In total nine engines were destroyed.’

A bleak scene at Zaporozhye-Süd in the winter of 1942/43 as two He 177s are prepared for another mission. A generator cart has been attached to the aircraft in the foreground, which bears the *Gruppe* emblem of I./FKG 50 and carries a more standard green finish, while the machine in the distance appears to wear a grimy, white winter distemper

Schlosser also noted that until flame-dampers were forthcoming, the He 177 could not be considered for night-bombing. On a positive note, he did praise the overall strength of the fuselage and the undercarriage.

But as Milch confessed to Major Werner Baumbach, the *Inspizient der Kampfflieger* (Inspector of Bombers), on 12 March 1943, in the dark aftermath of Stalingrad;

'We are in hot water because the He 177 is not good. The *Führer* has been talking to me. I felt like a little schoolboy who hasn't learned his lesson. I tried to explain things to him. But it is difficult to explain things to someone who does not follow our train of thought, particularly when one cannot simply say: "I've had to take things as I find them; I can't help it; it's simply the responsibility of my predecessor."'

Towards the end of January, the He 177s of I./FKG 50 were put on standby to assist VIII. *Fliegerkorps*, battered and in need of reinforcement after Stalingrad, in its task of transporting troops and wounded from the area east of the Kerch Strait to the Crimea. They would also be required to deliver supplies (especially motor fuel) from the Crimea or airfields north of the Sea of Azov to the area east of the Kerch Strait – another task for which the Heinkels would be totally unsuitable. The idea came to naught, however, and I./FKG 50 returned to Brandenburg-Briest in early February. Here, its He 177A-1 and A-3 crews began training with the Hs 293 guided bomb, benefitting from the instructing and operational experience of Major Schlosser. The *Gruppe* also used Vaerlose, in Denmark, for some training.

Additionally, three He 177A-1/U2 *Zerstörer* arrived at Brandenburg-Briest with which it was planned to mount operations against enemy trains on the Eastern Front, although nothing came of this and ultimately these aircraft were used for training.

One of the unit's Heinkels is known to have been lost east of Gotland Island, in Sweden, on 12 September 1943.

The *Gruppe* relocated from Brandenburg-Briest to Burg, near Magdeburg, in September or October 1943 with some 14 He 177A-1s and two A-3s, and on 25 October it was redesignated II./KG 40.

Perhaps the most succinct reflection on the sorry story of the He 177 over Stalingrad is provided by the Luftwaffe's senior air transport officer at Stalingrad, Oberst Fritz Morzik, who wrote in a post-war account;

Possibly as many as 15 He 177s of II./KG 40 are assembled on the taxiways at Bordeaux-Mérignac armed with Hs 293 glide-bombs under each wing in readiness for an anti-shipping operation in late 1943 or early 1944. One aircraft, at left, heads towards the runway. Preparation and training with the Hs 293 had been ongoing for most of 1943

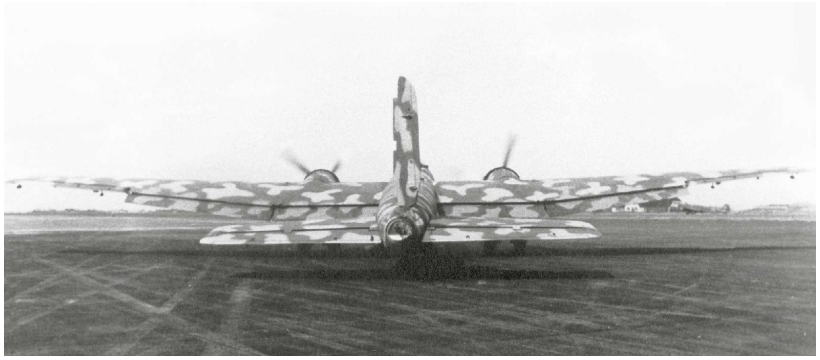
‘The penchant of Luftwaffe leaders for issuing indiscriminate orders regarding all sorts of things was amply illustrated by the order to transfer a He 177 unit to Zaporozhye. The He 177 was totally unsuited to transport purposes, both because of its flight characteristics and because of its vulnerability to technical failure.’

CHAPTER FOUR

ANTI-SHIPPING OPERATIONS

KG40 commenced its slow transition to the He 177 in January 1942 when the *Geschwader'*s 10. *Staffel*, under Hauptmann Heinrich Schlosser, handed its Fw 200s to 11./KG 40 and began to convert to the Heinkel. In July of that year, 10./KG 40 was redesignated as 15./KG 40 under Oberleutnant Günther Moltrecht. It seems the plan was for 15. *Staffel*, as part of the IV. *Gruppe* (which was responsible for operational training), to feed crews, over time, to I./KG 40, which was carrying out anti-shipping and reconnaissance missions over the Atlantic from Bordeaux-Mérignac.

Paradoxically, during 1941, I./KG 40 had enjoyed success in its campaign against Allied shipping, most notably during the first two months of that year when the *Gruppe* accounted for 39 vessels sunk and a further 17 to July, but it also struggled. In January, the *Gruppe*'s Fw 200s were placed under the operational control of the *Befehlshaber der Unterseeboote* (BdU – U-boat Command), and for some time its efforts to work in cooperation with the U-boats was a hit-and-miss affair. There was only a small number of aircraft available and they suffered from serviceability problems. On two early attempts to locate convoys in January 1941, the Condors lost contact, and generally the U-boats had to maintain their own reconnaissance. When the U-boats were moved north, from west of the North Channel, to track diverted convoys, their zone of operations stretched as far as the coast of Iceland – a point which the Fw 200s struggled to reach. The main issue, however, was that there were too few aircraft, and when a Condor was spotted by a convoy, the British simply diverted their ships.



A He 177 of KG 40 or KG 100 in a distinctive Mäander (scribble) camouflage taxies out. This pattern was used by both *Geschwader* for over-water operations. The photograph provides a good sense of how narrow

and confined the rear gunner's position was

By July only five aircraft from a strength of 25 available were operationally ready. However, the inescapable fact was that from the summer of 1941, by far the bulk of the Luftwaffe was committed to the east for the invasion of the Soviet Union – a land campaign. This meant that Luftwaffe commands in the west found it increasingly difficult to carry out the tasks allotted to them, including that of maritime reconnaissance, anti-shipping and mine-laying operations, as such duties became regarded as ever more peripheral.

By late 1941, the convoys were receiving regular destroyer escort as well as cover from aircraft, and thus the task of the Condors and the U-boats became ever harder. Subsequently, the main point of U-boat effort was moved west, further out into the Atlantic, targeting the eastbound Atlantic convoys – and well beyond the range of the relatively few Fw 200s that there were. As the Luftwaffe historical branch noted, 'in the middle of December 1941 cooperation with the C-in-C U-boats in the joint campaign against enemy shipping in the eastern Atlantic came practically to a standstill'.

By late 1941/early 1942, following an increase in the defensive armament carried by enemy shipping, the low-level, lateral attacks mounted by the Fw 200s of KG 40, which had previously proved successful, had become increasingly unsustainable, initially against convoys but soon even against single vessels. Nevertheless, although their efforts were muted to some extent, and some aircraft were moved away from France, the Condors were still able to perform occasional valuable reconnaissance for the U-boats so that they could be directed towards targets.

Aside from the Fw 200s, the only aircraft of any range available to the *Fliegerführer Atlantik* were the Ju 88s of Kü.Fl.Gr.106, which could be deployed only against convoys off the eastern coast of Britain.

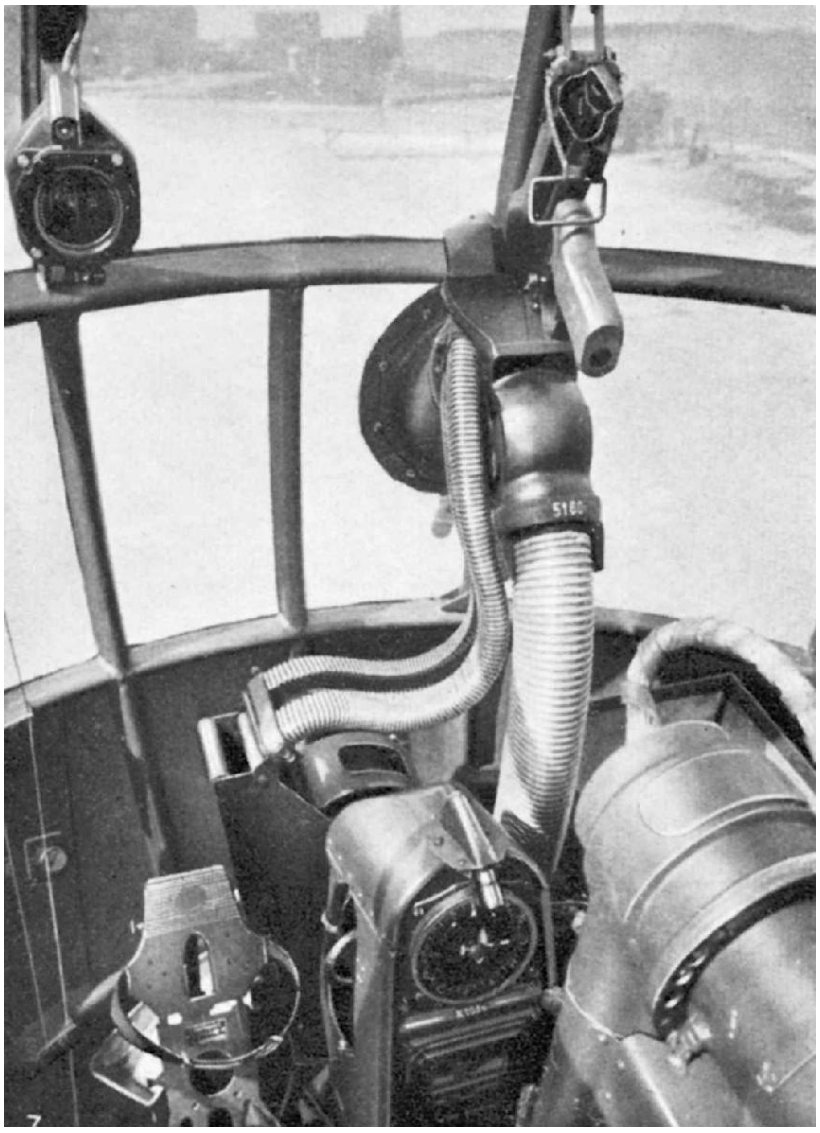
Despite the best efforts of IV. *Gruppe*, it took until 8 September for Major Ernst Pflüger's 1./KG 40 to relocate from Trondheim to Fassberg, where it received its first two He 177s. By the 29th it had its first five A-0s on strength. Re-equipping continued over the next six months, albeit in a leaden fashion, so that by early February 1943 2. *Staffel*, which had also been in Norway, went to Germany to begin conversion to the *Greif*, followed by Hauptmann Walter Rieder's 8./KG 40 in March. Notwithstanding this tortuously slow progress, on 7 February, because of continuing technical problems associated with the Heinkel, all aircraft were ordered grounded until further notice.

Reicshmarschall Hermann Göring was at his most sarcastic on 18 March 1943 when he addressed an aircraft production conference at Carinhall attended by Milch, senior figures from the aircraft and engine manufacturers, the RLM and other associated bodies. According to the Reichsmarschall he wanted ‘to speak about the entire situation on the technical side of the Luftwaffe and to inform you of my views on the subject’. Taking a swipe at the memory of Udet, Göring grumbled, ‘I was promised a heavy bomber, the He 177, which should have been with the squadrons a year ago. Following a series of calamities, I was told that if there was no need for this aircraft to dive it would be the best kite in the world and could be issued to squadrons instantly’.

Many of the attendees must have squirmed uncomfortably in their seats when they heard that. The Reichsmarschall continued, directing his ire somewhat heavily at what must have been the operations of I./FKG 50;

‘I at once said that there was no need for it to dive, as there was no intention of it being used in this way. However, every time we attempted operations with this type, there were only catastrophic losses which were not brought about by the enemy. More than a year has passed now and even if the contraption is produced in a reasonably serviceable version in a year’s time, it will probably be obsolescent anyway. Here I am then, empty-handed. Worst of all is the dead loss of the He 177, as this means that essential reconnaissance for U-boats cannot be carried out and operations against enemy shipping with special-purpose bombs will not be possible either. It is not only that the appearance of this aircraft is a year behind schedule, but that there is, moreover, no likelihood of it becoming operational for the present, and that an aircraft which has been in development for years should now suddenly present difficulties such as cannot be explained. I find this incomprehensible too.’

Göring expounded, at considerable length, on all the problems and shortcomings he had identified within the aviation industry and Luftwaffe procurement, and he did not spare the DB 606 engine;



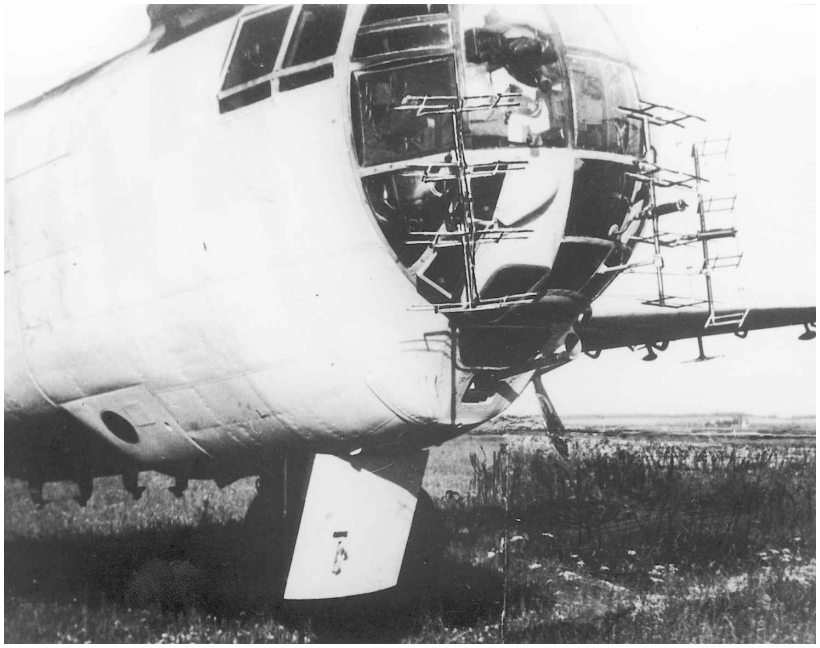
The upper A-1 *Stand* 7.92 mm MG 81 machine gun as manned by the bomb-aimer in a He 177A-1. Immediately to the left of the gun is the ammunition feed and, below, the shell discharge hose

‘I can see nothing exceptional in achieving an increase in horsepower by coupling together two engines and passing this off as a new engine – quite apart from the fact that I can do nothing with this crazy contraption as its suspended cylinders and unfortunate exhaust system make its employment against the enemy quite impossible. A series of fires has already caused loss of life. But this nailing together of two engines has produced further immense difficulties. They dare to give me an engine which cannot be serviced at all at operational stations and which at the slightest trouble must have its entire power unit dismantled before the engine can even be reached.

‘One thing is sure – and you cannot dispute it – and that is the absolute superiority in the technical development of airframes, engines and instruments on the part of the British and Americans. This is the only irrefutable fact, and all the rest was no more than a lot of tripe which you were always drumming into my ears.

‘I have considered, and am still considering, in all seriousness, whether we could achieve our purpose most quickly merely by blindly copying the best British four-engined bomber. I cannot do much with what you are giving me at present. Even if the He 177 is produced, what am I to do with it? It can hardly get its nose past the hangar doors and cannot even reach Glasgow. It is enough to drive one to despair! Year after year has gone by and you have plodded away at the same old things. First an engine is drilled out a bit more, but this just results in other disadvantages. Then the wing-tips are snipped off or something else is done. But a new aircraft which can really do the job does not materialise.’

It would not be until early May that the order to ground the He 177 fleet was lifted, but even then only four machines were cleared for flying. On 26 May 2./KG 40 received its first He 177, but by the following month IV./KG 40 still had only two He 177A-0s for training. Somehow, however, by 15 August the training of aircrews was essentially complete.



The nose of this He 177A-3 or A-5 of II./KG 40 has been fitted with the antennae of a FuG 200 *‘Hohentwiel’* ship-search radar. Immediately aft of the A-2 *Stand* gun gondola can also been seen the clasps of an ETC rack from which would be suspended an Hs 293 or PC 1400 (*Fritz X*) glide bomb in the A-3/R3 and R4 or A-5/R2, R3, R5 and R6 sub-variants

This training had also included rudimentary instruction on the new FuG 203/230 *Kehl*/*Strassburg* radio control system, for the *Fritz* X and Hs 293 air-launched, guided bombs. It was intended to fit the former weapon to the He 177 in preference to the Do 217, which could not match the range of the Heinkel. Success with the *Fritz* X against the Italian battleship *Roma*, which was sunk by the bomb during an attack in the Strait of Bonifacio in September 1943 as it attempted to surrender to the Allies, served to increase calls for a sub-variant of the He 177A-3 or A-5 able to carry the 1400 kg weapon. But ultimately this never happened and priority was given to the Hs 293.

The Henschel-designed weapon carried a 500 kg warhead in the forward part of a small, cylindrical fuselage, itself forming part of a small 'monoplane' with rectangular wings and tailplane. The aft part of the missile contained the control gyroscope, radio receiver, batteries and battery-driven motor generator. After launch, a small Walter rocket motor accelerated the speed of the Hs 293 to around 600 km/h at an initial thrust of 600 kg, decreasing to 400 kg. Cutting out after about 12 seconds, the bomb then coasted towards its target in a shallow dive guided by a bomb-aimer in the parent aircraft.

The first aircraft to deploy the weapon in action were the Do 217s of II./KG 100, which usually carried out attacks at night from 1000 m at about 320 km/h – the Hs 293 had a range of about 11 km. The means of controlling and guiding the Hs 293 lay in the FuG 203 b/230 a/b *Kehl*/*Strassburg* radio control system. *Kehl* had been developed by Telefunken and named after a district in Strassburg, the French/German city on the Rhine. The *Kehl* III transmitted orders as frequency modulations on a radio frequency carrier, with the weapon requiring a set of four orders for direction. The transmitter operated on one of 18 frequencies between 48.2 and 49.9 megahertz, separated by 100 kilohertz. Before take-off the bombs would be pre-set to one of the frequencies, with a corresponding setting made in the launch aircraft.

The system initially suffered from problems associated with moisture and condensation, especially during long-range, high-altitude missions, but these were countered by incorporating a special heating system in carrier aircraft that directed hot engine exhaust over the weapon controls. This installation meant that the airframe had to be specially fitted with both *Kehl*/*Strassburg* and the heating system, thus limiting the number of aircraft available.

A *Kehl* IV set was intended for the optional dropping of one Hs 293 or one *Fritz* X, but later developments made optional dropping of one to four *Fritz* X or one to four Hs 293s possible.

A Henschel Hs 293 guided glide-bomb rests on its shipping crate, which bears the bomb's Werknummer. Armed with a 500 kg warhead, the Hs 293 would achieve speeds of around 600 km/h after launch from its parent aircraft, with a decreasing thrust of 600-400 kg. Although technically advanced, its deployment proved challenging to the crews of He 177s and its success rate was poor

On 1 August 1942, the *Erprobungs- und Lehrkommando* 21 was formed at Garz auf Usedom to test the PC 1400 X. After a brief period as 13./KG 100, the unit was redesignated at Garz as *Erprobungskommando* 36 on 10 August 1943 in order to test the early versions of the Hs 293 and the FuG 203 *Kehl,* although training on the latter equipment was never sufficient.

The He 177A-3/R3 sub-variant was intended for both training and operational deployment of the Hs 293, with two such weapons being carried beneath the outer wings and one beneath the fuselage. The succeeding He 177A-3/R4 featured a trough, lengthened by 1.20 m, in order to offer improved fitment of the FuG 203 *Kehl* III.

In September 1943, Göring had directed that Generalleutnant Ulrich Kessler, the *Fliegerführer Atlantik* based at Angers, in western France, was to coordinate and direct attacks against enemy convoys and single ships in the Atlantic based on the interpretation of aerial photography and reconnaissance reports, to control long-range maritime reconnaissance and to undertake defensive sorties in the Bay of Biscay. To comply with Göring's orders, ranged across western France in mid-November 1943, Kessler drew upon a long-range *Staffel* of Bv 222 and Bv 138C-1 flying boats at Biscarosse intended for long-range reconnaissance (1./SAGr 129), one *Gruppe* and a *Staffel* of Ju 88C fighters at Lorient and Bordeaux-Mérignac (I. and 7./ZG 1), a *Staffel* of 12 Ar 196A-3s and five Fw 190s for reconnaissance and fighter operations at Brest-Hourtin (1./SAGr 128), a *Staffel* of six Ju 88s for reconnaissance (3.(F)/123) and a newly arrived *Gruppe* of long-range Ju 290s for U-boat reconnaissance and cooperation at Mont de Marsan (FAGr 5).

In addition to these units, Kessler's bomber force comprised II./KG 40 with around 30 serviceable He 177s at Bordeaux-Mérignac, which had been in location for only around a month under Major Mons (who been given command on 25 October), and III./KG 40 with some 45 Fw 200 Condors also at Bordeaux-Mérignac under Hauptmann Robert Kowalewski. By early November He 177s were making training flights from Bordeaux.

II. *Gruppe* had reformed officially on 25 October at Burg-Magdeburg from I./FKG 50, with 4., 5. and 6./KG 40 being formed from 1., 2. and 3./FKG 50, respectively. The new II. *Gruppe* replaced the former Do 217E-equipped *Gruppe*, which was redesignated V./KG 2. As a sample reflection of the actual strength of the new force, on 11 November *Fliegerführer Atlantik* reported just 24 He 177s with KG 40. Plans for III./KG 40 to convert to the He 177 were cancelled in the autumn of 1943 and the *Gruppe* transferred to Cognac in November, from where it continued to fly the Fw 200.

The He 177's baptism of fire came on 21 November 1943 in an operation that saw a rare instance of Luftwaffe units working effectively together over the Atlantic. Since 15 November, Ju 290s of FAGr 5 at Mont de Marsan had tracked the progress of combined convoy SL 139/MKS 30. This convoy was comprised of SL 139, returning to Britain from Freetown, in Sierra Leone, from where it had sailed on 2 November, and MKS 30 from Gibraltar. In fact, German agents in Gibraltar had already sent reports on the grouping of MKS 30 from ports in North Africa as early as the 13th. Based on this intelligence, Grossadmiral Karl Dönitz, the *Befehlshaber der Unterseeboote* (Commander of U-boats), moved quickly, ordering 26 U-boats of the *Schill* 'wolfpack' to attack the convoy. This group of submarines, which had been formed partly to attempt a one-night attack on a Mediterranean convoy using boats in the Atlantic and some sailing from the Biscay bases, had failed in its initial operation against other convoys from Gibraltar, primarily due to the boats' dependence on aerial reconnaissance for target location. Unfortunately, the Fw 200s used at the time had suffered from engine problems and radar defects.

Four He 177s of II./KG 40 lined up on the rain-wet concrete at Bordeaux-Mérignac ready for a flight. Their underwing ordnance racks are empty, however, suggesting the aircraft are carrying only an internal bomb-load or they are embarking on a non-operational flight. The crew of the lead Heinkel are visible in their lightweight flying suits to the left, while a generator cart is positioned immediately in front of the aircraft

SL 139 and MKS 30 had rendezvoused 100 miles south of Cabo de São Vicente on 14 November and sailed north in 14 columns, their protection being provided by warships from the 40th Escort Group. With the few serviceable Ju 290s available, FAGr 5 crews continued to monitor the convoys' progress, but their radio traffic had been picked up by Allied monitors. This in turn resulted in SL 139/MKS 30 gaining additional air support from Hudson-, Flying Fortress- and Catalina-equipped squadrons based in England, Gibraltar and the Azores.

Six He 177s of II./KG 40 on the apron outside the bomb-damaged hangars at Bordeaux-Mérignac in late 1943 or early 1944. Five of the aircraft are fitted with Hs 293 glide-bombs under their wings, while the engines are running up on the machines to the right as a mechanic guides them from the ground

Using the information gleaned from FAGr 5's flights, Generalleutnant Kessler and the BdU deployed all available forces against the 66-vessel convoy. To shadow it, the Luftwaffe additionally deployed the Bv 222s of 1./SAGr 129 and the Fw 200s of III./KG 40, while from early evening on the 17th, and based on FAGr 5's reports, Dönitz ordered eight boats of the *Schill* 1 pack eastwards in submerged patrol disposition to intercept by 1800 hrs on the 18th.

At 1100 hrs that morning, U-333, in position close to the convoy, was attacked by the frigate HMS *Exe*, from which command was effected over the 40th Escort Group. Having spotted U-333's periscope, *Exe* dropped depth charges and then rammed the U-boat with its keel. The submarine was subjected to another eight hours of depth-charging, but it managed to return to base despite having part of the frigate's propeller embedded in its hull. For the next three days, Luftwaffe shadowers and the boats of the *Schill* pack played a cat and mouse game with SL 139/MKS 30, during which time the convoy had been further reinforced by the seven ships of the 5th Escort Group as well as two destroyers, making a total of 19 escort vessels providing a double screen, and over which there was continuous air cover.

On the 21st, with the U-boats failing to make any impact against the convoy, the Luftwaffe decided to launch an air strike, this time using He 177A-5s of II./KG 40 fitted with the new Hs 293 glide bombs. SL 139/MKS 30 was once again located, this time, firstly, by five Fw 200s of III./KG 40, which commenced their sorties from 0330 hrs and were airborne for 12-13 hours. The Condors were followed by two Ju 290s from 2./FAGr 5, some of whose tracking information was relayed to Bordeaux-Mérignac, where II./KG 40 planned its mission. The convoy was 1400 km out to sea, so it was towards the limits of the *Gruppe*'s range. Because of this, all the new DB 610 engines were checked and re-checked to ensure that serviceability was as high as it could be.

Eventually, a force of 25 He 177s, led by Major Mons, took off from Mérignac, flying in close formation at just ten metres above the sea. For some of the way, escort was provided by eight Ju 88C-6s of ZG 1. Between 1208 and 1228 hrs the Heinkels arrived over the convoy, west of Brest at 46° 46' North, 18° 21' West, some 675 km northeast of Cabo Finisterre, about four-and-a-half hours after take-off. The formation was already depleted by this point since two of the Heinkels had been forced to abandon their mission due to problems with their *Kehl* III bomb release gear.

By this stage the weather had deteriorated, with the cloud base down to 300-400 m. Nevertheless, commencing at 1700 hrs, the bombers attacked individually, with one part of the formation, led by Hauptmann Alfred Nuss of 6./KG 40, concentrating on two ships – the 4045-ton *Marsa*, built in 1928, and the 6065-ton *Delius* – that were straggling three-and-a-half miles behind the convoy. The Hs 293s were launched from altitudes of between 400-600 m. Four He 177s fired eight missiles at the former, leaving it burning, although just one sailor from its 50-man crew was killed.

The ship's captain, Thomas H Buckle, watched as three Heinkels came towards his ship. The first two each released an Hs 293 off the starboard beam, then a second bomb off the port quarter, while the third bomber approached from astern on the port side and, when 4000 yards abeam, released its two Hs 293s some 45 seconds apart. Both of the latter appeared to fail and 'fell straight into the sea with their rocket motors smoking. We were attacking the aircraft with our 12-pounder, and as the bursts seemed to me to be close to the aircraft, this may have caused the bomb-aimer to have lost control to some extent'.

Two crewmen from unarmed He 177A-3 Wk-Nr 5870, which was operated by 6./KG 40 and then subsequently by IV.(Erg.)/KG 40 as a training aircraft, discuss their flight with a senior mechanic after landing. In the background is A-3 Wk-Nr 5861 GR+MS

As a fifth Heinkel came in, 'I brought my stern around, but as it travelled round the stern I lost track of the bomb and consequently I was unable to take any further avoiding action, and it struck the water between the davits of the port lifeboat, exploding in the engine room near the main discharge'. In another account, Buckle described how, when the Hs 293 impacted with the surface, it sent up a column of water some 35 ft high. He continued;

'The detonation did not appear to be particularly loud. The blast, however, was terrific. I was walking from the starboard to the port side of the bridge at the time, endeavouring to trace the bomb's path, when a gunner and the Second and Third Officers were blown in through the door for which I was heading. The ship was hit near the water line. I could not see the extent of the damage to the shell plating because it was underwater, but the deck was indented for the full length between the two boat davits, and the engine room flooded so rapidly that I think there must have been a hole in the ship's side.'

Marsa was last seen the next day drifting.

Moving at just seven-and-a-half knots, *Delius* was damaged in its bridge. The ship's Chief Officer, Gordon Marshall, described events as follows;

'At 1615 hrs the bomb struck the ship. The starboard wing of the glider-bomb hit the foremast – this turned it inboard and downwards, then it hit No 3 derrick and exploded on the port side of the hatch. The explosion was extremely violent, and debris was thrown to a tremendous height. I was knocked over by the blast and was dazed for a few minutes. The master on the bridge, the lookout on the monkey island and the assistant steward in the saloon were all killed instantly. The explosion shattered the bridge, chartroom, wireless room, etc., leaving them a complete shambles. Fortunately, the engine room was undamaged.'

Delius was brought back under control and managed to rejoin the convoy, even delivering its cargo to its assigned destination. Two frigates, HMS *Calder* and HMS *Drury*, were also attacked with Hs 293s, but they evaded the bombs by rapid manoeuvring, defensive fire and the letting off of flares. A single He 177 attempted to attack the destroyers *Watchman* and *Winchelsea*, but failed in its attempt. Defence for the convoy also came from the Canadian armed merchant cruiser HMCS *Prince Robert*, which arrived at the height of the attacks. The vessel zigzagged across the wake of the convoy, firing regularly at the German aircraft and adding to the barrage already in progress.

During their attack, which lasted for about 40 minutes, the He 177s, launched 40 bombs, 25 of which failed.

As Capt S W Roskill eloquently describes in the official history of Britain's war at sea, 'the long-awaited cooperation of the Luftwaffe with the U-boats had not achieved the results hoped for by Dönitz. The truth now seems to be that it came too late to restore the balance, let alone tip the scales in the German favour'.

II./KG 40 returned to Bordeaux, still in bad weather, between 2100-2400 hrs to discover that it had lost three of its A-3s, with a fourth aircraft crashing on landing, suffering 45 per cent damage, and three others sustaining lighter damage from the convoy's anti-aircraft defence. One aircraft ran out of fuel on the return flight, but its crew succeeded in bailing out. Two of the three Heinkels lost during the mission had been shot down by gunners aboard a Coastal Command Liberator of No 224 Sqn from St Eval, Cornwall, which had been conducting an anti-submarine patrol over the convoy. It was flown by Plt Off A Wilson, who had sighted the German bombers as they made their straight and level path towards the convoy and turned to engage. The crew of the Liberator reported their observations of the Heinkel attacks;

‘Flak from escort vessels appeared inaccurate and Heinkels took no evasive action. He 177s on starboard side approached at 4000 ft in steady flight and then released rocket glider bombs when over leading columns of merchant vessels, continuing to track over centre column to port. He 177 was seen to make attack from port beam also flying at 4000 ft, releasing glider bomb when over port column and continuing over convoy on steady course, taking no evasive action. These tactics used in all attacks, parallel to, or at right angles to the convoy’s track from all four quarters. The moment of release corresponded with the aircraft’s reaching the first line of ships. The aircraft then dived for some 1500 ft, appearing to formate on their bombing. Two Heinkels attacked throughout from north to south, turning and attacking next from south to north. Two other Heinkels made attacks from west to east, turning and then attacking from east to west. Heinkels released one glider bomb at a time – believed each released more than two bombs.’

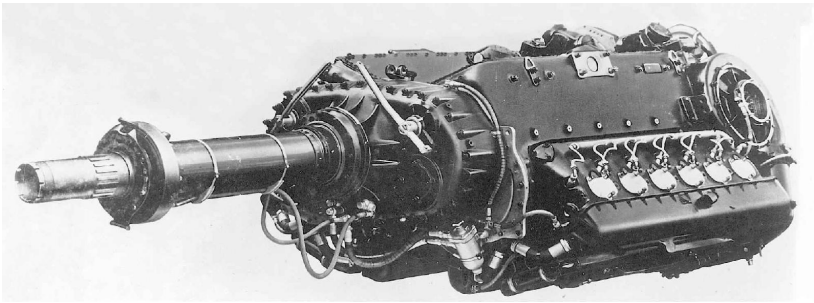
The crew of He 177 F8+OH of 1./KG 40, (from left to right) Unteroffizier Helmut Hoffmann, Unteroffizier Willi Scholz and Obergefreiter Walter Heibel, pose for a snapshot. The aircraft carries its individual letter on the central lower cockpit panel, as well as a small, personal emblem of two linked ‘SS’. To the left of the emblem is the viewing port for the *Lotfe* bombsight

In another post-mission report, a member of the No 224 Sqn crew commented;

‘The He 177 is considerably slower and seems less manoeuvrable than the Liberator, as we were able to maintain contact at 180 mph and could easily remain on the enemy’s tail despite violent attempts to shake us off. The enemy aircraft were by no means inclined to mix it. When attacked they took very ineffective evasive action. We carried out the majority of our attacks from below

and in front of the Heinkels, in order to bring our side and rear guns to bear. Our last attack was carried out from above and behind, from which position we found that we were able to make effective use of our nose gun, silencing the enemy cannon with our first burst.

'When the Hs 293s were released, they appeared to be thrown outwards at right angles to the line of flight of the aircraft. They descended in a shallow dive from some 1500 ft, taking up a parallel course to that of their parent aircraft after losing their sideways momentum. Their speed for the first 1500 ft was that of the aircraft, and from then onwards they descended at irregular speeds, sometimes even appearing to gain height. They left a trail of smoke and flame and continued to burn on contact with the water.



First installed in the He 177A-3, the Daimler-Benz DB 610 engine consisted of two coupled 12-cylinder DB 605 units. Weighing 1540 kg, it was designed to achieve 2950 hp at 2800 rpm on take-off and 2620 hp at 2600 rpm during climb and combat

'We found that by intercepting the Heinkels on their way in to bomb, we prevented any attack on that run, although the aircraft continued to track over the convoy. One, indeed, jettisoned his bombs on being intercepted and turned for home. A second, on being attacked and damaged after making a run, also set course for home.'

Wilson's gunners scored hits on several Heinkels and caused Wk-Nr 535443 F8+BN, flown by Oberleutnant Herbert von Berg of 5./KG 40, and Wk-Nr 535683, flown by Oberfeldwebel Gerhard Freyer, to go down. Aside from the losses, for the German technicians and engineers, the worry was that at least one Heinkel engine had burst into flames and that several of the complex and expensive Hs 293s had failed, not as a result of any Allied jamming equipment being deployed, but rather due to launch failure or loss of control after launch.

Five days later, II./KG 40 was in action again, but this time the *Gruppe* was directed south towards North Africa. During the course of 26 November, several patrolling Ju 88s reported sighting a convoy of between 15 and 25 vessels,

including a troop-transporter, off the North African coast. The convoy also had the benefit of air cover provided by a Beaufighter, a Wellington and a small number of single-engined fighters. This was actually KMF 26, an eastbound troop convoy of 22 merchant vessels and 15 escorts that had departed the Clyde on 15 November carrying mainly USAAF personnel bound for Alexandria, via Gibraltar. The Americans were destined, ultimately, for India, from where they would serve with the Tenth Air Force engaged in the China-Burma-India theatre.

In a significant response, 22 He 177s, once more led by the *Gruppenkommandeur* Major Mons, took off from Bordeaux-Mérignac, each carrying two Hs 293s. One machine, possibly Wk-Nr 535553 flown by Oberfeldwebel Georg Judemann of 6./KG 40, crashed on take-off due to a broken engine crankshaft and burnt out. Judemann and three members of his crew were killed. The remaining 21 Heinkels would be followed by 18 He 111s from II./KG 26 and 15 Ju 88s from III./KG 26. The day was drawing to a close when the Heinkels sighted the convoy north of Béjaïa, in Algeria. However, only six of the He 177s actually got through to the ships as a result of the Allied defensive air screen, and they made their attack between 1644 hrs and 1715 hrs. It was to prove disastrous.

As the sun began to set, the first wave of Heinkels targeted the escorts, with the anti-aircraft cruiser HMS *Colombo* as the prime target, but the vessel evaded all the bombs launched at it. The troop-carrier *Banfora* was fortunate to escape with a near miss, as was the destroyer USS *Herbert C Jones* when, at 1700 hrs, its crew was called to action and the ship's 40 mm guns opened fire at the approaching bombers. According to a report made by the American vessel;

'In this attack the new Nazi invention, the controlled glider bomb, was used extensively. It is definitely known that this ship was the target of at least two of these bombs. The first came straight in at the ship at about 005 degrees relative. It is estimated that this bomb crashed within 200 yards of the ship. The second bomb that originally had our name on it, but wound up in Davy Jones's locker, was entirely unobserved until it struck the water within 50 yards of the ship, almost directly amidships on the port side. The reason this bomb was not observed was due to a change of wind which blew our smoke screen back into our faces. That was more than close.'

One He 177 claimed to have sunk a destroyer, another to have damaged a warship, while a third registered hits on a transporter of 10,000 BRT. A fourth Heinkel reported hitting and sinking another warship, while a fifth suffered problems with its *Kehl* equipment. The last Heinkel claimed to have inflicted

damage on a destroyer too and, impressively, the Luftwaffe gunners also claimed to have shot down two Mosquitos and four Spitfires.

The reality was that just one vessel had been sunk, and that was the 8600 GRT troop-carrier HMT *Rohna*, built in 1926 and named after a village in Punjab. Operated by P&O, it carried a crew of 218 plus 2015 US servicemen who had embarked in Oran, Algeria, and was en route for Bombay via the Suez Canal. The effect of the glider-bomb attack would be catastrophic. *Rohna* was struck 15 ft above the waterline. One serviceman, Charles J Williams of the 31st Signal Heavy Construction Battalion, recalled, 'When the guided missile struck, it sent a rumble through the ship similar to a California earthquake. Several seconds later you could feel the ship starting to list. When the ship listed everyone headed for the stairs immediately'.

As engines rev up, aircrew mingle with groundcrew as they prepare to board a He 177 on a wet day at Bordeaux-Mérignac (*Author's collection*)

When the weapon exploded, it started a fire in the ship's engine room and scattered debris amidst the machinery and pipework, knocking out the lights, communications and pressure system. Some 300 men died in the blast. Exacerbating the subsequent loss of life was the fact that most of the vessel's lifeboats had either been destroyed or were defective, while many of the rubber life-rafts were also unusable. *Rohna* sank within an hour. The convoy commander ordered a small number of vessels to pick up survivors from the oil-blackened water, but in the growing darkness and swelling sea, their work was greatly impeded. As a result, 1015 American servicemen, 120 British and Indian crewmembers, 11 gunners and three Red Cross workers perished. It was the worst disaster at sea to befall the American military.

Armourers work on the dorsal, remotely-controlled, electrohydraulic FDL 131 *'Drehlafette'* barbette of He 177 Wk-Nr 550060 of II./KG 40. The barbette housed an MG 131Z *('Zwilling'*) gun (*Author's collection*)

However, as the Heinkels made their attack, aircraft from the Free French fighter unit *Groupe de Chasse* 1/7, which had recently re-equipped with Spitfire VBs, as well as P-39 Airacobras of the USAAF's 350th Fighter Group (FG) and Beaufighter VIFs from the RAF's No 153 Sqn and the USAAF's 414th Night Fighter Squadron (NFS) arrived on the scene. A swirling and confused aerial battle ensued. One American pilot, 1Lt Burton Clark, in a Beaufighter from the 414th NFS, recalled how he had flown past KMF 26 near Béjaïa at 1615 hrs, shortly after which he and his observer spotted a He 177 'going full speed for the deck'. The Americans gave chase, and after ten minutes caught up with the German bomber in cloud. As Clark described;

'We could see two glide bombs outside the engines. He went into a slow starboard turn, so at 300 yards, with ten degrees deflection, I gave him a long burst with cannons and machine guns, raking him from outside the left nacelle, through the fuselage to the right nacelle. Oil and pieces of the ship, one of which could have been an engine cowl or escape hatch, flew past and both engines were on fire as we ducked into the clouds for a second. Dropping down on a parallel [course], we saw him jettisoning fuel and one of the radio-controlled bombs. One man bailed out. We closed to 250 yards, firing at him again in both engines. This time he started losing altitude, and I think the fuselage was on fire. Then, for good measure, we went in a third time to 100-150 yards, leaving the whole ship a mass of flames as it dove into the sea.'

The Heinkels were mauled by the Allied fighters and six of their number were shot down and lost, including the aircraft of the *Kommandeur*, Rudolf Mons, whose He 177A-3, Wk-Nr 535670 F8+DM, was reported missing with its entire crew of Unteroffizier Karl Enz (observer), Feldwebel Heinrich von Oopen (radio operator), Feldwebel Walter Laib (flight engineer), Obergefreiter Dieter Tschöpe (gunner) and Unteroffizier Heinz Niele (gunner). Also failing to return were the aircraft of Hauptmann Arthur Horn, *Staffelkapitän* of 4./KG 40, and Oberleutnant Gerhard Strube of the same *Staffel*, and Hauptmann Alfred Nuss in Wk-Nr 535684 F8+BP, who had led the attack against the *Marsa* and the *Delius* on the 21st, and Oberleutnant Fritz Noll, both of 6. *Staffel*. The surviving Heinkels were led back to Bordeaux-Mérignac by the acting *Staffelkapitän* of 5./KG 40, Hauptmann Ernst-Hans Dochtermann, whose Hs 293 is believed to have sunk the *Rohma*.

In the final reckoning, another Heinkel of 6. *Staffel* ditched off Montpellier and its flight engineer was lost. The aircraft of Feldwebel Alfred Naaf also crashed and was destroyed at Bordeaux, with one crewmember killed and five more injured.

Following the attack on KMF 26, what remained of II./KG 40 was withdraw from operations for a period. With the loss of Mons, under the command of Major Walter Rieder, the *Gruppe* rebuilt its strength and devised new tactical methods. A recipient of the *Ehrenpokal*, Rieder was an experienced maritime pilot having flown with 3./Kü.Fl.Gr. 406 prior to being appointed to command 8./KG 40 in April 1943.

After the Mediterranean debacle, Rieder and his senior officers judged that the best way to deploy the Hs 293 would be at night. The *'Zentrale Angriff'* (central attack) tactic would see the Heinkels carry a bundle of 16 50 kg flares internally in addition to wing-loaded glide-bombs. Approaching in darkness, a first *Kette* of three aircraft would drop their flares, which provided the equivalent of 1.5 million candle power, at the beam of a convoy, while a second *Kette* would then launch its Hs 293s against targets now strongly illuminated. The darkness would also provide some cover against anti-aircraft defence, meaning that the He 177s could launch their bombs when flying directly towards the ships from a distance of between 10-15 km. Using his *Kehl* equipment, the bomb-aimer could track the path of the bomb using its tail light, and turn away when around 4-5 km from the target. Radio communication between aircraft would be maintained, and a second attack could be mounted from the same direction once further flares had been dropped.

Clad in lightweight summer flying suits and helmets, with inflatable life jackets, parachute harnesses and oxygen masks, the crew of a He 177A-5 from 4./KG 40 shout over the noise of the right DB 610 engine to members of the groundcrew. The aircraft is finished in one of several styles of Mäander camouflage associated with the He 177, this one probably consisting of a base of RLM 76 grey over which has been applied a wide, random scribble of 70 or 71. The photograph is probably posed, but depicts the moments shortly before the crew board the aircraft. A generator cart is visible behind the groundcrew, the crew access hatch is lowered and the crewman holding a briefcase is probably the navigator

In the meantime, much of I./KG 40 had converted to the He 177, with 31 A-3s assigned to the unit at Fassberg by 30 November 1943. Elements of the *Gruppe* would start to transfer to Châteaudun, in France, in December to commence operational training under the control of IX. *Fliegerkorps*, while after lengthy delay, further training on the *Kehl* systems resumed at Schwäbisch-Hall and Giebelstadt. IV./KG 40 remained at Orléans-Bricy, continuing to instruct crews on both the Fw 200 and He 177, feeding them to both I. and II. *Gruppen*.

Also in December, I. and II. *Gruppen* of KG 100 had started to receive He 177s, converting from the He 111 and Do 217. These units had been the subject of considerable reorganisation, with I./KG 100 being formed from I./KG 4 on 20 October 1943 under Hauptmann Hans-Gotthelf von Kalckreuth. Like I./KG 40, I./KG 100 would also move into Châteaudun at the end of 1943, while II. *Gruppe* relocated from Garz and Toulouse-Blagnac to Aalborg, where it would become operationally ready from February 1944.

Missions mounted by II./KG 40 became less frequent at the end of 1943, but when they were flown there were losses. Such was the case on the morning of 24 December when the *Gruppe* despatched six He 177s at 0615 hrs to conduct a reconnaissance for enemy shipping over the Bay of Biscay along with Fw 200s of III. *Gruppe*. It was customary for He 177s to be sent out over the Bay area only when a ‘target’ had been firmly identified by other reconnaissance aircraft.

The Heinkels would usually operate in at least four-aircraft formations, ranging to a limit of 22° West, but occasionally extending to 24° West.

The Heinkels had been airborne for around two hours when they were spotted and engaged by RAF Beaufighter XIs of No 143 Sqn. The latter had taken off from Portreath, in Cornwall, for a patrol over the Atlantic led by Sqn Ldr Bill Moore, an Irish Battle of Britain veteran. Closing in on the Heinkels, Moore's aircraft was hit by defensive fire from the He 177 of Leutnant Richard Kranz of 4./KG 40 and exploded in the air. Momentarily horrified by what they had just witnessed, the remaining Beaufighter pilots then attacked Kranz's He 177, Wk-Nr 535562 F8+LM, three times, setting its starboard engine on fire. The bomber glided towards the sea, burst into flames and broke up. There were no survivors from either of the aircraft.

The following afternoon 16 He 177s went out on an armed reconnaissance over the Atlantic, looking to find and attack British warships with Hs 293s. Six aircraft returned because of the adverse weather and one with engine problems. The remaining Heinkels did locate enemy ships, but low-lying cloud prevented an attack.

Unfortunately for the He 177s, also airborne over the Atlantic that afternoon was a formation of eight Mosquito IIs from No 157 Sqn based at Predannack, in Cornwall, and led by Sqn Ldr Herbert Tappin. The Mosquitos were on course for home in the early evening when Tappin observed a lone He 177 ahead and also a group of Heinkels that appeared to be pursuing a US Navy PB4Y-1. In fact the American aircraft crashed into the sea shortly thereafter as a result of an accident or malfunction, but Tappin chose to engage the lone Heinkel, which was the A-3 Wk-Nr 535557 F8+IN, flown by Hauptmann Berhard Eidhoff of 5./KG 40. Tappin subsequently reported;

'The He 177 on sighting our aircraft opened up and started violent evasive action, mainly up and down, and opened fire with rear armament. The Leader closed in to 600 yards and fired a short burst from port, then making another attack from starboard. Flg Off D W Davison was seen to attack after this with unobserved results. Sqn Ldr Tappin's aircraft was hit by return fire and with the cockpit filling with smoke, a quick check was made. This revealed no oil pressure or temperature on starboard engine and strike by an explosive bullet on starboard wing. A further attack was made from ten degrees starboard, range 400 yards, and strikes were seen mid-fuselage and a large white glow appeared, the aircraft catching fire in the fuselage, gradually losing height and attempting to ditch, but on contact with the sea it blew up.'

Eidhoff had joined II./KG 40 from I./FKG 50 in July 1942. He would be promoted to Major posthumously.

In a typical scene that would have taken place on the airfields of KG 1, KG 40 and KG 100, mechanics use an *'Aufsatzkran'* ('tower crane') to change the DB 610 engine of a He 177. The *Aufsatzkran* was held in position by wire stays coupled to the wing uppersurfaces and the engine lifted onto, or from, a trolley. The DB 610 weighed 1500 kg without its propeller unit. As seen here, this aircraft, finished in an over-water camouflage scheme, carries the small unit code of '6N' of KG 100 on its fuselage just forward of the national insignia

On 22 January 1944, the Americans launched their amphibious assault against the Italian ports of Anzio and Nettuno, with a fleet of 370 ships and landing craft bringing in 50,000 men from the US Army's VI Corps as well as British troops. To counter the landings, *Luftflotte* 2 called in the Ju 88s of I. and III./KG 1, He 111s of I. and III./KG 26, Do 217s from II./KG 100 and He 177s from II./KG 40. The latter *Gruppe* mustered between 18 and 24 aircraft at this point, and at 1150 km from their base at Bordeaux-Mérignac, Anzio was within their range, even equipped with Hs 293s. They appeared over Nettuno for the first time on the evening of 23 January when seven He 177A-3s took off from Bordeaux at 1330 hrs and attempted to attack Allied ships. In addition to a pair of Hs 293s, each Heinkel carried 16 50 kg flares in its internal stowage in the eventuality conditions on arrival were too dark to mount a visual attack.

Flying individually at 300 km/h on a course that took them from Mérignac, southeast to Avignon, it was intended that the Heinkels would assemble over southern France before making course across the Gulf of Genoa, and from there

overland along the Italian peninsula. However, with 7/10th cloud between 400 and 3000 m in some areas, there was less light than expected and the operation became difficult. Ultimately, the bombers failed in their task.

Two of the Heinkels were claimed shot down by Beaufighters, and indeed the bombers flown by Hauptmann Bernhard Kobrink and Oberleutnant Paul Dietrich, both of 4./KG 40, failed to return – the former and his entire crew were officially posted as missing, while five from Dietrich's crew were known to have become PoWs. Their aircraft, F8+AM, had climbed above the cloud in an attempt to rendezvous with the other Heinkels as planned, but when none were seen, they descended to look for the target alone. After searching fruitlessly for 90 minutes, the crew decided to return and made course for Genoa. In fact, they passed over Corsica, where they were attacked by an enemy fighter. With both engines on fire and with the exception of the tail gunner, all the crew bailed out and were captured.

Three of the He 177s returned to Bordeaux between 2115 hrs and 2330 hrs, while the other two landed at Toulouse-Francazal.

Over the course of the next 24 hours, along with torpedo- and glider-bomb-carrying Do 217s of KG 100, He 177s from II./KG 40 flew seven operations to Anzio-Nettuno. During one of these missions Major Rieder claimed to have sunk a 3000-ton freighter. A cruiser and a destroyer were also claimed as damaged by the *Gruppe*, but the only ship known to have been hit by a Hs 293 was the J-Class destroyer HMS *Jervis*, which was providing naval gunfire support for the landings. A glider-bomb demolished its forward superstructure and distorted parts of the hull, but the ship suffered no casualties and eventually made it to Naples under its own power. *Jervis* also picked up survivors from the destroyer HMS *Janus*, which had been hit by an aerial torpedo nearby. The missions on 23-24 January would see the loss of eight He 177A-3s and five crews.

On the morning of the 24th, the commander of Luftwaffe forces in Italy, Generalfeldmarschall Dr-Ing Wolfram *Freiherr* von Richthofen, noted optimistically, 'The weather is favourable. Operations could turn out to be a great success, since on the Nettuno coast, winds of 80 km/h are prevailing and there are high seas, so that damaged ships may probably sink'. II./KG 40 sent out 11 aircraft to the Italian coast that day, of which only seven reached the Nettuno landing zone, and again they failed to hit any targets. Two bombers from 5. *Staffel* were lost, one flown by Hauptmann Hanns-Günther Ebersberger and the other by Oberleutnant Fritz Hoppe. The latter's F8+NN was attacked by a Beaufighter two kilometres off Nettuno as it made its approach towards pre-

illuminated targets at Anzio at dusk and the crew were forced to jettison their Hs 293s shortly before they decided to bail out.

Nevertheless, by the 26th, as the weather worsened, following a series of dusk glider-bomb attacks the senior US naval officer in charge of landing operations at Anzio ordered that all cruisers and most destroyers should retire seaward every afternoon by 1600 hrs at the latest. That evening, however, a formation of around ten He 177s took off from Toulouse-Blagnac, where they had probably been undergoing repair and servicing in the field workshops, for the Nettuno landing area. While en route the Heinkels were intercepted by USAAF fighters based on Corsica, and six bombers were claimed to have been shot down. As a result of this encounter, the aircraft of Hauptmann Paul-Gerhard Hofmann of 6./KG 40, who was a veteran of FKG 50, crashed in flames ten kilometres northeast of Anzio with no survivors. Engine failure claimed the He 177 of Leutnant Siegfried Bonacker and all of his crew, also of 6. *Staffel*, while an aircraft of 5./KG 40 crashed too – three of its crew were posted missing and three returned.

Attrition at such a high level could not be sustained, and at the end of the month II./KG 40 was given a brief period of rest. Its anti-shipping missions in the Mediterranean had cost no fewer than 24 aircraft, either as a result of combat, engine failures or crashes for other reasons. This, despite the fact that serviceability levels for the *Gruppe*'s He 177s were reported to be at an impressive 80 per cent.

It was not long before II./KG 40 returned to the Atlantic. A planned strike on 4 February by four He 177s against convoy SL 147/MKS 38, bound for Britain from Gibraltar, was abandoned, but on the 12th nine Heinkels along with Fw 200s of III./KG 40 targeted the 60 ships of the Gibraltar/Freetown-bound convoy OS 67/KMS 41 650 km west of Cabo Finisterre. The Condors went in first, but lost one of their number to an enemy aircraft, while the other three failed to make contact. The He 177A-3s followed, led by the *Gruppenkommandeur*, Major Rieder, reaching the convoy shortly after sunset, but Allied radio monitors had picked up the Heinkels' activity and four Wildcats of 881 Naval Air Squadron from the escort carrier HMS *Pursuer* were scrambled to intercept. In fading light Walter Rieder's aircraft, Wk-Nr 535695, was attacked by the carrier-borne fighters and Sub-Lt T L M Brander in JV429 ('2N'), who had just completed a two-hour patrol, shot it down in flames five miles on the beam of the convoy, having fired less than 60 rounds per gun. He subsequently landed back on *Pursuer*'s desk, having never previously made a night landing.

Another He 177, Wk-Nr 535569, was hit by the carrier's guns. Hs 293s were launched by three of the surviving Heinkels, but none hit the convoy, while the bombs from another were jettisoned as its carrier aircraft was also under attack by a Wildcat. Finally, He 177 Wk-Nr 535679 F8+PN had been intercepted by Allied fighters during the flight out to the convoy. It glided for four kilometres before crashing into a French forest, killing two crew – the explosion as it hit the ground resulted in its engines ending up 100 m apart. A post-mission report claimed that the weather had been unsuitable to fly such a mission.

With the loss of Rieder, command of the *Gruppe* was passed to pre-war Lufthansa pilot and *Legion Condor* veteran Hauptmann Ernst-Hans Dochtermann, but once again, with such losses, operations became few and far between.

Oranienburg-built He 177A-1 Wk-Nr 2138 VD+XN is seen here shortly after a crash-landing. The aircraft is finished in a typical mid-war mottle scheme from that plant, comprising a base of RLM 76 grey over which was applied a heavy stipple of green, probably either 70 or 71

Because of the high rate of attrition, it was not until March 1944 that II./KG 40 was able to assign two experienced crews to IV. *Gruppe* as training instructors. With personnel shortages beginning to bite, IV./KG 40 was forced to hand over 24 crews to I. and II. *Gruppen* after only 15 hours instruction on the He 177. Furthermore, lack of a suitable testing range meant that training on guided bombs could not be completed for new crews.

From the spring of 1944, II./KG 40's He 177A-3s were gradually replaced by the new A-5s in which the earlier MG FF and MG 131 machine guns were exchanged for 20 mm MG 151 cannon. It was planned that the *Gruppe* would eventually take on 30 A-5s, with its A-3s being handed to IV. *Gruppe* and other training units. However, there was a complication in the process because the *Kehl* IV-equipped A-5s lacked range when fitted with a full offensive load of external bombs and internally-carried flares, and they had to be retrofitted initially with *Kehl* III. On 20 March, *Luftflotte* 3 reported 28 He 177s on strength with II./KG 40, of which 12 were serviceable.

In mid-1944, an *Oberkommando der Luftwaffe* (OKL – Supreme High Command of the Luftwaffe) report encapsulated the unrealistic mindset at senior level when it came to the He 177's versatility and true capabilities;

'The He 177, which will later be used as a long-range, twin-engined fighter, will be employed exclusively in defence of our U-boats by means of operations against enemy bombers. This form of attack will reduce the air superiority of the enemy over the Atlantic within the range of our own air force to such an extent that our own forces will become more effective, and will also ease the position of our U-boats.'

In March, II./KG 40's base was targeted. On one occasion, the new *Fliegerführer Atlantik*, Generalleutnant Alexander Holle, was visiting Bordeaux-Mérignac when it was strafed by enemy fighters and a new He 177A-5 exploded during take-off while under attack. Six days later the airfield was bombed, leaving three aircraft destroyed and five damaged.

Armourers use a hydraulic bomb trolley to load 250 kg bombs into a He 177A-5 of KG 40 or KG 100. Note the forage cap hanging from the barrel of the A-2 *Stand* MG 151/20 cannon

During April, further difficulties were experienced with training because of 35 He 177s with IV./KG 40, only 13 were serviceable and there were only ten instructors. The low serviceability was made worse by a shortage of engines and a lack of new aircraft following damage to production inflicted by Allied bombing of factories. Yet an OKL report from mid-1944 revealed somewhat unrealistic high-level thinking;

'IV./KG 40 must undergo a course of training for bombing over the Atlantic and all personnel with some experience of flying over the sea will receive intensive training in tactics, navigation and armament – 40 long-range bomber crews should complete their training each month.'

One positive was that I./KG 40 at Fassberg had 36 He 177A-3s on strength on 15 April, of which 21 were equipped with *Kehl* III, but only 25 of its 36 crews were fully trained. Another unit to receive the Heinkel in small numbers was *Wettererkundungsstaffel* (Weather Reconnaissance Squadron) 2, which took on its first A-3s in April at Nantes before moving to Mont de Marsan.

On 5 May, most of II./KG 40 relocated temporarily to Gotenhafen-Hexengrund, on the Baltic coast, for a naval exercise, but a month later, on 6 June, the Allies landed in France, pouring 155,000 men along with vehicles on to the Normandy beaches from a vast naval armada. The Allied air cover was immense, with sufficient capability to fly more than 14,500 sorties within the first 24 hours. II./KG 40 was recalled to Bordeaux and soon began operating against the invasion fleet. Despite being dubbed 'the spearhead of the anti-invasion forces' by Göring, and displaying tenacity in the face of adverse odds, the Heinkels were hopelessly outnumbered and relatively easy prey for Allied fighters operating in strength over the landing area.

The *Gruppe* mounted its first mission against the enemy fleet on the night of 6/7 June, but to its misfortune, operating over the Normandy coast at the same time were Mosquito XVII nightfighters of No 456 Sqn RAAF under the command of ace Wg Cdr Keith Hampshire. It was Flg Off Ron Pratt who first obtained a fix on a Heinkel just after midnight but as he closed in, his guns failed to fire. Shortly after he picked up a second contact, and this time with his guns tested and working, he closed in from behind at an altitude of just 500 ft and gave a short burst of fire from 150 yards. The bomber 'burst into flames, climbed to 800ft, then dived, exploded, crashed into the sea and burnt fiercely'.

An hour later, fellow Australian Flg Off Fred Stevens observed a He 177 carrying two glider bombs near Cherbourg. As he recalled;

'We were coming in much too fast so I closed the throttles completely and set the range bars to 100 ft. I turned the gun button to "Fire" as we hurtled in the last half mile. He opened fire first, well over 600 yards off. The coloured balls curled lazily away from the rear of the cabin, then accelerated rapidly past our right wing. The dot of the sight settled between the engine and wing root and I pressed the gun button. One of the first incendiaries must have ruptured a fuel cell, for it seemed the moment I pressed the gun button a huge ball of flame engulfed the Heinkel. The crew would have died instantly. The left wing broke off, the rest of the wreckage disintegrating as it fell 10,000 ft into the Channel.'

Not long after, Stevens and his navigator, Plt Off Andy Kellett, obtained a visual on another He 177. They attacked and set fire to its port engine, while a

second burst of fire caused the fuselage to erupt in a white flash. The bomber exploded as it hit the water off Le Havre.

Wg Cdr Hampshire then saw action when his navigator, Flt Lt Tom Condon, picked up a trail of 'window' on his Air Intercept radar scope. 'A long visual at over 3500 ft of a He 177 was obtained in magnificent full moon conditions'. Two glider-bombs were clearly visible. Opening fire from 150 yards, Hampshire saw large pieces of burning debris fall away from the bomber. Seconds later it exploded, and its flaming fragments dropped into the sea east of Barfleur.

Of 26 He 177s sent out to attack the enemy ships on the night of 6/7 June, 13 failed to return. The cull would continue the following evening when No 456 Sqn again engaged II./KG 40, which had sent up all of its remaining aircraft for another attack. Sqn Ldr Bas Howard and Flg Off Jack Ross accounted for two Heinkels off the coast, and they would have shot down a third but for having exhausted their ammunition. Plt Off R D 'Butch' Hodgen and Flt Sgt A McCormick engaged in a long chase in the darkness, finally catching up with another Heinkel and shooting it down in flames. Seven He 177s failed to return from that night's operation, whilst six more made it back to Bordeaux with varying degrees of battle damage.

On the night of 9/10 June future ace Flt Lt Bob Cowper and Flg Off Bill Watson caught a He 177 at 4000 ft off the French coast, the bomber's tail gunner firing at their Mosquito. Cowper returned fire 'with three bursts, seeing numerous strikes on the starboard wing, which started to burn. One of the glider bombs from under the He 177's wings glided off in flames and the enemy aircraft dived steeply, levelled out and crossed the coast near Cap Levy at about 100 ft, the wing still burning'.

Over the course of the next four weeks, No 456 Sqn would regularly encounter He 177s over Normandy, claiming a total of 13 destroyed. Plt Off Ivor Sanderson and Flt Sgt Charles Nicholas had a 'close shave' on the night of 10 June, when they manoeuvred their Mosquito to attack a He 177 over the sea. Sanderson recalled, 'Some quite big pieces of aircraft seemed to come off when the four cannon struck the target'. As the nightfighter closed in, defensive fire from the Heinkel hit it in the right wing, causing major damage to the wing leading edge, as well as puncturing the main spar and fuel tank. With considerable difficulty, Sanderson managed to nurse his damaged Mosquito back to base. 'The damaged section of the wing measured between 6-7 ft, and most of the way there was nothing left of the leading edge until the main spar. It was a cannon shell which hit us – we could see the tracer close above the wing'.

In July, after just six missions against the invasion fleet during which they claimed the sinking of 67,000 tons of merchant shipping and 5700 tons of warships, the crews of II./KG 40 were finally rested and then withdrawn from operations to recover and re-equip at Lechfeld. The Battle of the Atlantic was effectively over and German military power in the Mediterranean had been overcome. But away from these campaigns, the He 177 units had also been active in the skies over Britain.

CHAPTER FIVE

BOMBING BRITAIN

Within days of the He 177 going into action over the Atlantic and the Mediterranean, on 26 November 1943 Reichsmarschall Hermann Göring invited Adolf Hitler to Insterburg, in East Prussia, which was located conveniently near to the *Führer*'s eastern headquarters at Rastenburg. In an attempt to restore his declining prestige, Göring had set up a display of some of the Luftwaffe's latest aircraft and weaponry, including prototypes of the advanced Messerschmitt and Arado jet- and rocket-powered interceptors. Hitler seemed generally indifferent to the flying display and was keener to know what immediate steps were being taken to retaliate against Allied bombing raids on the Reich. The following day, Göring promised Hitler that he would arrange for the Luftwaffe to carry out a major retaliatory bombing raid on London.

However, for much of late 1943, senior British commanders did not believe they had much to fear from a conventional Luftwaffe bomber campaign against the British Isles, although the threat was not totally ruled out. As the former Fighter Command staff officer and military historian, Basil Collier, has commented;

The first He 177A-1 (Wk-Nr 550132 6N+EN) to be delivered to 5./KG 100 at Aalborg

'There was little disposition to over-estimate the threat from orthodox bombers, for the German bomber force had been unimpressive in recent months, and the training of crews for accurate bombing of well-defended targets was justly thought to have been so long neglected that a spectacular recovery was improbable.'

Yet intelligence began to filter through that a young, but senior-ranking German air commander, Generalmajor Dietrich Peltz, was gathering a new force whose goal was to target London. The latter was seen both as the centre of command for any Allied invasion of occupied France and a location where troops, ships and aircraft could be expected to assemble during the spring. Even these reports, however, caused little alarm among the staffs of RAF Fighter Command and the Air Defence of Great Britain.

On 28 November Göring chaired a hastily convened conference of senior officers at Neuenhagen, on the eastern outskirts of Berlin. Among those in attendance was Generalmajor Peltz, who had been summoned from the headquarters of IX. *Fliegerkorps* in France. Göring trusted Peltz. After an impressive operational record, in which he served over Poland, France, the British Isles and the Soviet Union, Peltz had been awarded the Swords to the Knight's Cross with Oak Leaves on 23 July 1943 following the completion of more than 320 missions as a Stuka and bomber pilot. In March 1941 he was appointed to command II./KG 77 and by 12 July that year he had flown his 200th combat mission.

In January 1942 Peltz took command of the *Verbandsführerschule für Kampfflieger* (Bomber Unit Leaders' School) at Foggia in Italy, which later moved to Tours in France. This school was redesignated I./KG 60 in August 1942 as an anti-shipping unit, with the then Major Peltz as its *Kommandeur*. Promoted to Oberstleutnant on 1 December 1942, he was ordered away from operations and appointed *General der Kampfflieger*. In March 1943 Peltz was simultaneously given the title *Angriffsführer England* (Attack Leader England), with specific responsibility for assembling a bomber force and effecting a bombing campaign against the British Isles. In August 1943, as he was preparing for this, he was appointed commander of IX. *Fliegerkorps* and promoted to Oberst.

Göring enforced upon the assembled gathering of senior officers the need for secrecy in respect to what he was about to say, and what he did say caught most of the attendees by surprise. The Reichsmarschall informed them that he wanted a new series of bombing raids planned against Great Britain, with London as the main target. There was some urgency about this, as Göring explained;

'I have told the *Führer* that we shall be ready in 14 days. It is absolutely necessary that we should have 300 aircraft ready for the first operation. If I can have about 100 in the second attack and early in the morning about 150, that will come to between 550 and 600 sorties – that is what we must aim at.'

The *Führer* had also agreed to wait a further ten days should a full moon help to improve the chances of success.

To carry out this mission, in particular Göring wanted at least one, possibly two, *Gruppen* of He 177s to be ready in time and to spearhead the attacks – the first time German 'heavy' bombers would be used over England since 1918. As a priority, he was eager for them to carry the heaviest ordnance – 2500 kg bombs, which were to be charged with a special 'England mixture' comprising Trialen and Hexogen explosives. Once stocks of these weapons were exhausted, they would carry 1000 kg and 1800 kg bombs, as well as AB 1000 containers holding 620 one kilogramme incendiaries.

New types of Ju 88 'pathfinders' from the specialist *Gruppe* I./KG 66 would also be deployed, using the highly accurate *Egon* blind-bombing system to aid the main bomber streams.

After due consideration, Peltz advised Göring that Luftwaffe bombers would be capable of making two sorties in one night against London, but that three was not realistic. Göring eventually accepted this.

The following month Göring formalised his intentions in an order dated 3 December that was addressed to Milch, Peltz and the commanders of *Luftflotten* 2 (based in Italy) and 3 (in France), Generalfeldmarschalle von Richthofen and Hugo Sperrle, respectively;

'To avenge the terror attacks by the enemy, I have decided to intensify the air war over the British Isles by means of concentrated attacks on cities and especially industrial centres and ports.'

Göring planned to strip von Richthofen of his Mediterranean bomber units – KG 30, KG 54 and KG 76 – in order to bolster Sperrle's units in France, so that the whole force would number *Gruppen* drawn from KG 2, KG 6, KG 30, KG 40, KG 54, KG 66, KG 76, KG 100 and SKG 10, representing more than 500 aircraft comprised mainly of Ju 88s augmented by Do 217s, Ju 188s, Me 410s, He 177s and Fw 190s. He demanded that the re-equipment and replenishment of the units assigned to take part in the operations, as well as their ground support infrastructure, move ahead as quickly as possible, and that forward airfields be made fully ready. Tactical direction of the campaign was to be placed under the command of IX. *Fliegerkorps*, led by Peltz and based at Le Coudray-sur-Thelle, near Beauvais, with planning conducted under the strictest secrecy.

Göring instructed that, 'Particular attention is to be paid to the selection and preparation of bombs. In general, for all attacks, 70 per cent of the payload is to

be used for carrying incendiaries. Of the high-explosive bombs, first and foremost the heaviest types (larger than 1000 kg) are to be used with the "England mixture" and air mines. Types smaller than 500 kg are to be used only to make up the loads to the full capacity of the aircraft'. He also wanted the first targets drawn up in December.

Peltz favoured mounting low-level nocturnal strikes against British power stations, or to make such attacks in periods of bad weather, thereby ensuring that his relatively small force would create the maximum impact on the enemy's economy and show something lasting for their efforts. Göring, however, wanted to inflict maximum disruption by high-profile, blanket bombing, for which the He 177 would be ideal.

Two early production He 177A-1s, Wk-Nr 550132 6N+EN and Wk-Nr 550120 6N+AN, seen shortly after their delivery to II./KG 100 at Aalborg in early 1944

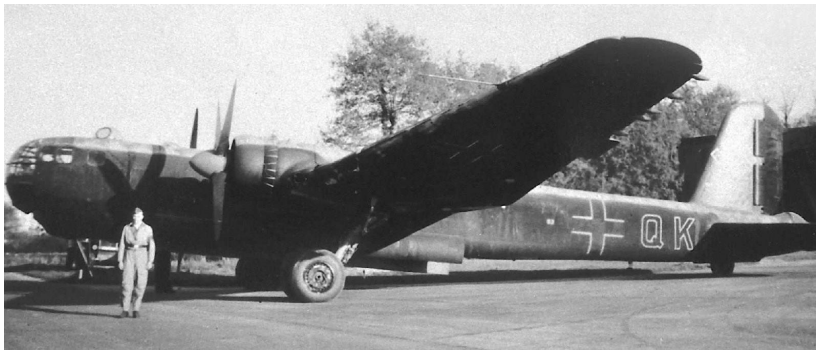
Peltz had never been convinced by the He 177. Werner Baumbach recounts how, 'Although Peltz always fought against the He 177 and preferred a fast medium-range bomber like the Ju 188 for operations against England, he had to yield to "higher views"'. On one occasion he had apparently commented, 'I must emphasise that the He 177 is 160 km/h slower than the Ju 288'.

Despite Göring's demands, the commencement of what was christened Operation *Steinbock* (ibex) was delayed until January while Peltz readied his aircraft and crews and ensured he had sufficient quantities of ordnance. At senior level the overall operation was known as *Capricorn* after the astrological sign period during which the raids were to begin, but operations were conducted as *Steinbock*.

On 12 December, orders were issued that all He 177A-3s be prepared for operations against Britain, and four days later, as part of that process, 1./KG 40 began to relocate its Heinkels from Fassberg to its nominated base at Châteaudun. On 15 January, as part of Peltz' policy of dispersing his force so as to avoid the prying eyes of Allied aerial reconnaissance, four He 177s were

moved west to Rennes. During this time, the *Staffel* received several visits from a senior officer from KG 2 whose Do 217s and Ju 188s had been involved in earlier, smaller-scale raids on London.

By 21 January, 524 aircraft from 15 *Gruppen* were assigned to *Steinbock*, of which 462 were serviceable. But of these, just 46 were He 177s, with 42 of them being serviceable – 15 (15) from I./KG 40 (all 1.*Staffel*) and 31 (27) from I./KG 100, which had also moved into Châteaudun, having swapped its He 111s for He 177s as I./KG 4 at Lechfeld. A 'new' I./KG 100 had been reformed as part of a major restructuring of bomber *Gruppen* on 21 October 1943 when the elements of I./KG 4 and I./KG 100 effectively swapped designations. A new *Gruppe Stab*, 1., 2. and 3./KG 100 were formed from the corresponding *Staffeln* of I./KG 4. The new *Gruppe* was based at Lechfeld, where it continued to train up on the He 177 as it had done as KG 4 under the command of the former *Kommandeur* of I./KG 4, Hauptmann Hans-Gotthelf von Kalckreuth, with the 1., 2. and 3. *Staffeln* of I./KG 100 led, respectively, by Hauptmann Leonhard Knapp, Hauptmann Wilfried Schmitz and Oberleutnant Kurt Maier. Many of the *Gruppe*'s airmen were seasoned combat veterans with experience in flying missions in He 111s over the British Isles, the Mediterranean and Russia.



He 177A-3 (or A-5) 5J+QK offers a good indication of just how low such aircraft 'sat' on the ground. The aircraft had originally been on the strength of I./KG 4, and carries that *Geschwader*'s code forward of the fuselage Balkenkreuz, which it retained after the *Gruppe* was redesignated I./KG 100 in October 1943

The new 3./KG 100 was the first to be brought up to operational readiness, moving to Châteaudun on 18 December. By the 25th, I. *Gruppe* listed 15 He 177s on strength, with seven serviceable, in addition to which four more were transferring to Châteaudun, three were in Lechfeld and a further nine were with I./KG 40. There were 11 crews, all ready, with a further eight at Lechfeld and eight with KG 40.

A native of Bielefeld, the *Staffelkapitän* of 2./KG 100, Wilfried Schmitz, enlisted in the Luftwaffe in November 1938, commencing officer training the following year. After passing through several operational training schools, he joined 3./KG 4 on the *Kanalfront*, where he was involved in flying minelaying missions around British ports and estuaries as well as day and night bombing raids over southern England. Schmitz also served as operations officer for I./KG 4 and then from mid-July 1941 he saw action on the northern sector of the Eastern Front, flying missions against Moscow and Leningrad. He was decorated with the Knight's Cross on 21 August 1942, and by October of that year had flown 300 missions.

Kurt Maier, commander of 3. *Staffel*, had studied to become an engineer before the war, but in 1939 he joined the Luftwaffe and undertook reserve officer training. In November 1940 he was assigned as an observer to 2./KG 4 based in The Netherlands, from where he flew missions over England. His *Staffel* was then posted to the Mediterranean, where Maier engaged in many minelaying sorties against enemy ports and the Suez Canal. Subsequently, he saw service in Russia, where he flew operations attacking targets behind Soviet lines. He was awarded the Knight's Cross on 16 November 1942, by which time he too had flown well over 300 combat missions.

A pair of He 177A-5s of KG 100 undergo servicing on a sunny day at Munich-Riem in 1944. Their camouflage and muted national markings are typical of machines operating on night missions from this unit. Mechanics work on the DB 610 engines of the Heinkel in the foreground, its wing maintenance access panels for the radiator intakes also being open. Note the cover for the dorsal B-2 *Stand* FDL B 131 turret that has been removed and is lying on the right wing. Riem was a major pre-war airport and served as an important civil and military hub throughout the war. Proving this point, parked behind the He 177s are a Ju 52/3m, Ju 88s, a Ju 188, an Fw 200 (in the hangar), a Bf 110 and a Do 217

The *Steinbock* aircraft were gradually mustered at their forward airfields across France, Belgium, The Netherlands and northern Germany in readiness for operations against England. Although there had been some small-scale 'nuisance' attacks mounted against Britain in early January 1944, mostly by Ju 88s, Me 410s and Fw 190s, *Capricorn* opened with intent on the 21st when Peltz targeted London with two waves of bombers drawn from all his units, as well as Fw 190s from I./SKG 10, under the codename Operation *Mars*. The night before Peltz had journeyed from his headquarters at Le Coudray-sur-Thelle south to Châteaudun, where he met with the crews of KG 40 and KG 100. He told them that Germany faced a 'very important and strenuous' period of the war. So far, the Reich had had to endure Allied raids on its cities without the ability to retaliate, but that had now changed.

Peltz outlined his plans for his units to fly in mass formations – such as they were able to mount – akin to RAF Bomber Command's 'streams', but unlike their British counterparts, they were to fly at low altitude towards pre-assigned points on the European coast before climbing to cross the coast of Britain. They were then to make shallow, diving approaches towards the target before returning to the Continent at a pre-agreed minimum height. Peltz expected the 'utmost efforts', and he expressed his confidence that if called to do so, the crews could and would fly two sorties in one night.

Owing to the considerable diversity of aircraft deployed and their differing performances, pathfinder Ju 88s of I./KG 66 were also used to illuminate the aiming points that lay around the area of Waterloo railway station, known to the German crews by the codename *München*. This area formed a rectangle approximately 1.5 x 2.25 miles, with its corners at a point just south of Borough underground station, the northeast corner of Southwark Park, a point 500 yards south of Queens Road station in Peckham and King's College Hospital in Denmark Hill. After having dropped their ordnance, the bombers were to turn and exit eastwards along the Thames Estuary.

The He 177s of 1./KG 40 and 3./KG 100 operated, effectively, as a combined force under the tactical control of *Stab* I./KG 100, but in the interests of security, their crews were not informed of specific target details until the last possible moment. The He 177s of KG 100 took off at 1930 hrs in the first wave, while the first aircraft of KG 40 followed 20 minutes later, orbiting the field until the remainder of the attacking force had assembled. They then headed north towards the port of Dieppe. Each aircraft was loaded with either two 2500 kg bombs or two 1800 kg bombs and a 1000 kg bomb, although the lead He 177 is believed to

have carried a pair of 2500 kg high-explosive bombs externally, which it was to drop as it started its bomb-run over northwest London. The He 177s crossed the French coast on their way out over marker searchlights near Dieppe.

The crew of He 177A-5 Wk-Nr 550136 6N+HN of 5./KG 100 receive a pre-flight briefing in front of their aircraft possibly at Leck in late 1943/early 1944 during the *Staffel*'s transition to the Heinkel from the Do 217

Navigation to London was conducted by dead reckoning, with the German bombers leaving their widely dispersed bases to funnel in along a cone-shaped course between the Essex and Sussex coasts.

The propellers begin to turn on the port-side DB 610 engine of Wk-Nr 550043 6N+HM of 4./KG 100. This image offers a good view of the gun gondola on a He 177A-5, with the MG 151/20 in the A-2 *Stand* and an MG 131 in the rear C-*Stand*. The absence of externally-carried under-fuselage weapons greatly improved the field of fire of the latter weapon! The aircraft lacks an A-1 *Stand* MG 81

Flying He 177 Wk-Nr 5747 F8+HH from KG 40 on an operational mission for the first time was Oberleutnant Karl Waterbeck, a 'veteran' Fw 200 Condor pilot and a recipient of the *Deutsches Kreuz* in gold. Waterbeck had flown missions in the Fw 200 over the Atlantic and as far north as Iceland as an NCO, being credited with the sinking of at least one vessel in Icelandic waters in April 1942. He had been awarded the *Ehrenpokal* on 15 February 1943, with the *Deutsches Kreuz* following on 25 November of that year. Waterbeck's aircraft, an A-3, was fitted with balloon cable-cutters along the wing leading edges.

Typically, Waterbeck's crew, kitted out with the latest parachute harnesses and electrically-heated flying suits, comprised men with varying levels of expertise and experience. It included Oberfeldwebels Erwin Mirbach (radio operator) and Georg Six (flight engineer), who had flown with Waterbeck in Condors, and observer Obergefreiter Jann Bikker. The latter had joined the Luftwaffe in 1941 and, following observer school at Hörsching, he had been assigned to Ju 88-equipped IV./KG 30 prior to being posted to a Ju 52/3m transport *Gruppe*, with whom he flew supply missions to Italy. Reassigned to 1./KG 40 at Fassberg, Bikker underwent training on the Hs 293 before joining Waterbeck's crew.

Six had served with the Austrian army pre-war before joining KG 40 in the aftermath of the German campaign in Poland. After training as a senior flight mechanic at Wels, he returned to KG 40, joining 3. *Staffel* at Trondheim, before transferring to 1./KG 40 at Fassberg. By the time of the strike on London he had 66 operational missions to his credit. The rear gunner, Obergefreiter Werner Doge, had been an orderly in the KG 40 officers' mess at Trondheim, but in an attempt to increase his income he had volunteered for flying duties. After some brief training at Trondheim, Doge was assigned to an Fw 200 crew in June 1943. He joined Waterbeck's crew at Fassberg in September 1943 without having ever attended gunnery school and began conversion to the He 177.

Waterbeck gained time as he crossed the Channel, and he circled for a few minutes off the English coast before turning inland near Eastbourne at a height of 6500 m. The Heinkel then made a course to the northwest, crossing the South Downs, but it was picked up by searchlights and held in their beams for some time. The visual sighting was reported and a Mosquito XII nightfighter of No 151 Sqn flown by WO H K Kemp and Sgt J R Maidment, which had been airborne for more than an hour out of Colerne patrolling the Middle Wallop sector, was vectored towards the German raider. Contact was eventually made with the Heinkel at 14,000 ft and two miles range. The Mosquito orbited the 'bandit' and made a visual sighting, identifying it as a 'Ju 88', and closing to

3000 ft on the aircraft's tail. At the same time, the searchlights were requested to be dimmed.

The Germans had also spotted the fighter and Waterbeck took evasive action, causing Kemp and Maidment to lose both radar and visual contact. A short while later, however, the Mosquito regained contact while the He 177 continued to make evasive manoeuvres, with its bombload still attached, before levelling off at 11,000 ft as it headed northwest. As the Mosquito closed from 800 ft to just 50 ft, this time Kemp and Maidment identified the Luftwaffe machine as a 'Ju 188' on the basis that its wings, fuselage and tailplane all appeared square-cut. Kemp allowed the Mosquito to drop back, before firing a two-second burst of cannon fire. The Heinkel exploded in a white and orange flash and it skidded violently to port, heading for the ground in a spiralling dive that was too steep for Kemp to follow. The Mosquito crew last saw the He 177 'going down, with burning whiteish exhausts'.

His aircraft having been severely damaged, Waterbeck ordered the bombs to be jettisoned as he tried to belly-land, but in doing so the He 177 crashed at a very shallow angle into trees on rising ground at Whitmore Vale near Hindhead, in Surrey, at 2131 hrs. The tail section broke away about a metre forward of the fin and remained relatively undamaged, but the rest of the aircraft caught fire and was destroyed, except for the outer section of the left mainplane. It was the first He 177 to come down on English soil. Three of the crew – Bikker, Mirbach and Six – managed to bail out, but Waterbeck and one of his gunners, Gefreiter Johannes Conrad, were killed in the crash. Doge was able to climb out of his rear gun compartment, only slightly injured, after the aircraft had come to a standstill. Karl Waterbeck was promoted to Hauptmann posthumously.

Another Heinkel from this attack, He 177A-3 Wk-Nr 5741 CJ+FO of 1./KG 40, flown by Oberleutnant Helmut Botterbrodt, failed to return. An experienced maritime and transport airman, Botterbrodt had previously served with 1./Kü.Fl.Gr.106 and II./KG.z.b.V.1.

The second wave of the night, comprising some 200 bombers, was slated to go out eight hours later. With aircraft drawn from KG 2, KG 6, KG 30, KG 54, KG 66, KG 76 and KG 100, the force encountered steadily worsening weather, and it is believed that only around half of its number actually made it as far as England, with just 25 aircraft reaching London – including a small number of He 177s. One such aircraft was A-3 Wk-Nr 2231 5J+ZL flown by Oberfeldwebel Alfred Billing of 2./KG 40, another former Fw 200 pilot. Billing, previously with 9./KG 40, had survived the ditching of his Condor in the

Atlantic in August 1943 after it had been hit by enemy gun fire, being rescued by a U-boat. In the mission to London of 21/22 January Billing would not be so fortunate.

As he approached the Sussex coast shortly before 0430 hrs, one of his Heinkel's engines failed and Billing gave the order for his crew to leave the aircraft while over the water at 20,000 ft. The observer, Feldwebel Heinrich Beitter, and the flight engineer, Oberfeldwebel Franz Andrae, an experienced airman with more than 60 missions to his name who had received training on the Hs 293, bailed out and were carried by the following wind into England, where they landed by parachute near Hastings. Their aircraft, however, crashed into the sea six miles southeast of the town. A bootless Beitter was officially 'captured' by a local fire service volunteer who escorted him to the local fire station and, in true British style, offered him a cup of tea. Andrae was similarly taken into custody by a quarry worker and again presented with a cup of tea, before being collected by the local police.

In fact, the *coup de grâce* had been administered to their He 177 by a Mosquito XIII of No 85 Sqn flown by Flg Off Christopher Nowell, who, a short time before, had encountered a Ju 88 that had managed to escape. However, Nowell's quick response ensured that the Heinkel was not so lucky, the bomber exploding just as Beitter and Andrae exited. Those crew members who stayed with the aircraft were posted missing, but later that day two of their bodies were washed ashore between Dover and Lydd.

For the Heinkels of KG 40, it had not been a good beginning to Operation *Mars*. Of the 15 aircraft that had taken off, one burst a tyre before take-off and eight others suffered overheating of their engines and were forced to return to base shortly after departure, leaving only four aircraft London-bound. Two of these, A-3s Wk-Nr 535743 CJ+FQ and 535560 NN+QZ, crashed in France on the way out, while two others, He 177A-3 Wk-Nr 5745 CJ+FS, flown by Oberfeldwebel Hugo Fleischer of 1./KG 40, and A-3 Wk-Nr 2225 5J+VL (thus possibly an aircraft originally assigned to KG 4), flown by Leutnant Rolf-Heinrich Melcher of 2./KG 40, crashed near Rouen and at Amy, respectively, on their return.

KG 100 lost a He 177A-3 of 3. *Staffel* when Wk-Nr 332198 5J+DL, flown by Oberleutnant Hans-Werner von der Dorenmühle, crashed at Les Grandes-Ventes, 15 km southeast of Dieppe, its bombs exploding as it did so. No trace of the Heinkel's crew was found. Two more He 177s of KG 100, including A-3 Wk-Nr

535560, were damaged in crash-landings at Rheine, to where they had returned after the second-wave operation.

Despite incendiaries landing around Westminster, and dock installations, a factory and other commercial premises in east London being hit, as well as damage being inflicted to a power station and railway lines, militarily, Operation *Mars* was an abject failure, with only 32 bombs of the 282 dropped actually falling on London. Of 245 bomb damage incidents reported by the British authorities, 201 were outside the capital, mostly in Kent, with others in Sussex and Essex. Although the Ju 88s of I./KG 66 had indeed dropped white marker flares along the *Leuchtpfad* (path) to London, the marking was poor. Adverse weather and strong enemy defences were all factors that contributed to the disappointing results. Nevertheless, the loss of 38 aircraft (both combat and non-combat) during the raid was cause for grave concern.

At a situation conference on 28 January, Hitler lamented over the disappointing performance of the He 177 in its attempts to bomb London. 'They can't even get *that* far', he seethed. 'This rattletrap is obviously the worst junk ever to have been manufactured.'

After a brief period of recuperation, which coincided with the onset of bad weather, the next major attack took place on the night of 29/30 January. This time, 285 bombers reached London in one extended wave, including a small number of He 177s from I./KG 40 and 3./KG 100 that had taken off from Rheine. The force dropped 715 tons of incendiaries and 310 tons of high-explosive bombs. Hundreds of fires were reported across the city and fire damage was extensive in the Surrey Commercial Docks in east London. Fourteen aircraft failed to return from the raid, but the He 177s escaped without loss, although two Heinkels of I./KG 100 landed at Rheine badly shot up, while He 177A-3 Wk-Nr 535748 CJ+FV flown by Oberleutnant Günter Kampf of 1./KG 40 crashed at Münster on its return. Four crew were listed as missing.

It was at this point that it was decided to pull I./KG 40 out of further bombing operations so that it could concentrate on anti-shipping work with the Hs 293. 1./KG 40 handed over its aircraft to 3./KG 100 and returned to Fassberg to re-equip with the He 177A-5 fitted with the Henschel glide-bomb. This left I./KG 100 as the sole He 177 *Gruppe* operating against England. However, this *Gruppe*'s performance over Britain left something to be desired – during the raids so far, at least 14 of its crews had aborted their mission and returned to base early. Mainly, this was attributable to a lack of experience on the crews' part

in handling the He 177's engine revs and speeds, which had led to engine fires and a handful of crashes.

On the British side, the two raids in January had resulted in the deaths of 100 Londoners, with about 200 more suffering injuries.

With February came more attacks. On the night of the 3rd/4th, another two-stage raid deploying 240 aircraft was directed at the British capital, the first wave, comprised only of light-payload Me 410s and Fw 190s, taking off between 1900-1930 hrs. Just six He 177s of 3./KG 100, operating from Rheine, took part in the second wave, although a seventh machine, He 177A-3 Wk-Nr 332220 5J+IH, was forced to land at Euskirchen due to engine failure. As a result, one of its gunners, Unteroffizier Gustav Bartz, was injured.

The Heinkels of 3./KG 100 assigned to fly on a given raid would taxi out and form up in a predetermined line at the end of the runway. Each aircraft was given clearance to take off by a signal from a lamp once the preceding He 177 was clear of the ground. The bombers would then fly a direct westerly course, navigation assisted by radio signals from the *Funkfeur* 2 beacon station on the Dutch coast at Noordwijk. Over the North Sea the Heinkels would be aided on their course by six flame floats dropped by *Pfadfinder* (pathfinders). Some 40 km off the British coast, the gunners would start to release bundles of *Düppelstreifen* 'chaff', or, as the British knew it, 'Window', twice every minute. Named after the Berlin neighbourhood in which it was produced, the bundles of aluminium *Düppel* strips were released to cloud and smother British ground and nightfighter radar screens with multiple returns.

The starting of a He 177's DB 610 engines was often a troublesome moment for air- and groundcrew, with failures and fires being a common occurrence. Here, two groundcrew appear wary as the right engine starts on He 177A-3 NF+GB of *Flugzeugführerschule* (FFS) (B) 16 at Burg in the spring of 1944. The aircraft is finished in a standard night-operations scheme of mottled uppersurfaces and black fuselage sides and undersurfaces, and carries the owl emblem of FFS (B) 16 below the rearmost glazed cockpit panels

The He 177s would then cross the English coast at 5500 m north of Orford Ness, in Suffolk, before turning towards London at a point just east of Newmarket – a spot hopefully identifiable by red marker flares dropped earlier by the Ju 88s of I./KG 66. As they made their approach, the pilots would throttle back their engines and descend to their bombing altitude of 4700 m. As a result of changing height and throttled-back engines, it became difficult for British radar to pick the German bombers up or to hold their track with any sound-recognition devices, in addition to which, the bombers now dropped their *Düppelstreifen* every five seconds. Further red marker flares laid by I./KG 66 would illuminate the target area for the incoming bombers.

After the release of their bombs, and again in a measure designed to fox the British air defences, the Heinkel pilots opened up their throttles, but continued to reduce their height at a rate of around 180 m per minute. Maintaining 560 km/h on their homeward course, crews aimed to cross the French coast over Boulogne at around 800 m, from where they would make for Rheine via Arnhem.

The reality was that the results of the 3/4 February raid failed to replicate the damage inflicted on 28 January, which was probably a reflection of the fact that relatively few bombers had actually released their loads over London. The attack time over the city lasted only 40 minutes. Badly hit, however, was the borough of Wimbledon, where 27 houses were destroyed, 48 seriously damaged and a further 320 left with minor damage. There were five deaths and six serious injuries. To the east, at Brentwood and Upminster, hundreds of houses and shops were damaged, and in the former location, a school suffered a serious fire. Total casualties as a result of the raid were 31 killed and 88 injured, around half of whom were in Greater London.

From 4 February, the loss felt by the removal of I./KG 40 to the Reich was countered by the gradual arrival at Châteaudun of the He 177s of Hauptmann Schmitz's 2./KG 100 from Lechfeld, these aircraft bolstering Maier's 3. *Staffel*, which had just moved back to the French airfield from Rheine. 1./KG 100 remained at Lechfeld, and the *Gruppenkommandeur*, Hauptmann von Kalckreuth, apparently made only one appearance at Châteaudun, although he did fly at least one mission to London from Rheine, as will be recounted later in

this chapter. Proceedings were interrupted on 5 February when the Heinkels were dispersed temporarily to Rennes following a raid by Eighth Air Force heavy bombers on Châteaudun, although the B-17s only dropped leaflets.

A few more small-scale raids mounted by Fw 190s and Me 410s took place over the coming days, with the next major mission against London set for the night of 13/14 February. In preparation for this, 17 He 177s of 2. and 3./KG 100 transferred once more from Châteaudun to Rheine as part of a force of 230 bombers put together for the task by Generalmajor Peltz.

However, it seems Peltz was not satisfied with the conduct of KG 100's operations, to the extent that he decided to visit the two *Staffeln* at Rheine on the afternoon of the raid. As he had done before the commencement of the *Steinbock* raids on 21 January, he again emphasised to the Heinkel crews the importance of adhering to the course and timings set out during the pre-mission briefings. Peltz also played down the threat posed by enemy nightfighters, telling the assembled airmen that on the night of 3/4 February, 39 RAF nightfighters were airborne over London, but that of this number only nine had made use of the increasingly efficient ground-controlled interception (GCI) system. Quite how Peltz knew this is unclear, and it is more likely his comments were intended simply to aid morale.

The *'Angriffsführer England'* stayed at Rheine that night to observe the take-off and return of the Heinkels, but events were to prove distinctly unimpressive. The weather was cold, so the 'cold start' procedure was adopted. Fourteen He 177s were readied for take-off under the command of Hauptmann von Kalckreuth, but one aircraft suffered a burst tyre and remained on the ground. Of the 13 machines that lifted off, no fewer than eight were forced to return as a result of overheated engines – something that was blamed on the 'cold start' procedure!

A member of the aircrew, at right in flying suit and lifevest, supervises the bombing-up of ‘H’ for ‘Helga’, a He 177A-3 of I./KG 100, possibly at Châteaudun in the spring of 1944. Note the open bomb-bay doors and upper access panels to the left side DB 610 engine

If Peltz’ patience had not been tested so far, it no doubt would have been when von Kalckreuth’s aircraft returned early. The *Gruppenkommandeur* made it as far as Norwich, but for some reason aborted and turned back towards the Dutch coast. It was only after he was heading inland that von Kalckreuth was reminded that his aircraft was still carrying its bombs, and so he took the measure of dumping them in the Zuyder Zee before heading to Rheine. Of the four He 177s that eventually made it to the London area, all dropped their bombs and returned, although one was shot up by a nightfighter and not all managed to make it directly back to Rheine.

The British reported ‘about 100 long-range bombers’ crossing the coast, of which only an estimated 15 were operational over London, the rest roaming across Essex, Kent and Sussex for a period of two hours. Damage and fire was negligible, with one fatal casualty in London and seven elsewhere, plus 17 serious injuries. In truth, just four tons of bombs hit the capital, with 157 falling in Kent and Essex, most of which were incendiaries. Eight Ju 88s and a Ju 188 failed to return.

Undaunted by such marginal accomplishments, but probably under pressure from the top, Peltz began to ramp up his attacks. Another raid was executed on the night of 18/19 February in which 187 aircraft were operational, including He 177s from 2. and 3./KG 100 that took off from Rheine. The effects of this attack were more extensive, with some 120 bombers plotted over southern England that left 480 fires and 180 people killed, with a further 484 seriously injured. The London borough of Wimbledon was again badly hit, with bombs falling on a rest home for the elderly. The small number of Heinkels suffered no

losses, and after the raid they landed at Rennes, returning later on the 19th to Châteaudun.

The bombers were sent out again on the 20th/21st, and this time there were 165 of them drawn from 12 *Gruppen*, including 15 Fw 190s. In preparation, I./KG 100 transferred around ten of its He 177A-3s during the 20th to Rheine, but one aircraft, Wk-Nr 332210 5J+IL of 3. *Staffel*, was forced to make an emergency landing at Beauvais-Tillé during the transfer as a result of engine failure. The Heinkel's flight engineer, Feldwebel Kurt Klemm, and gunner Gefreiter Klaus Müller were injured.

An Sd.Kfz. 8 half-track (extreme left) tows He 177A-3 6N+SK '*Susi*' of 2./KG 100 across the apron at Rheine in the spring of 1944. The aircraft is finished in a commonly used scheme of greys 76/75 on its uppersurfaces, while a coat of black has been applied elsewhere for night operations over the British Isles

It would seem that the He 177s were to be the main 'bringers-of-carnage' on this raid, for at least some of them were loaded with four 1000-kg SC 1000 *'Hermann'* high-explosive bombs. They made for Noordwijk, where they formated with aircraft from I. and II./KG 2 and I. and II./KG 54. From there, they were to take a direct course to London, passing over the southeastern corner of Essex, just north of Southend. The Heinkels were to fly in with the Ju 88s of I./KG 54, which carried AB containers loaded with incendiaries. One Heinkel was hit by anti-aircraft fire over the Essex coast and had to turn back, reaching Rheine on just one of its coupled engines.

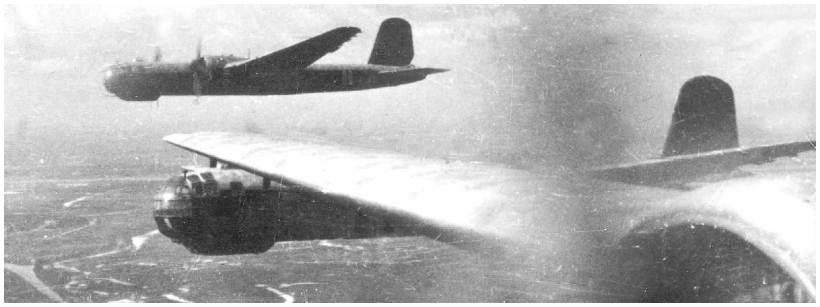
For the rest, again the target was an area of London south of the Thames, and the He 177s were scheduled to be over the city between 2202 and 2212 hrs, along with I./KG 54, by which time red marker flares would have been dropped by pathfinders of I./KG 66. Indeed, at least two He 177s managed to reach the city and drop their SC 1000s – four from each aircraft. Captured aircrew told British interrogators that the bulk of the bombers were to fly slightly north of the target and make a left-hand turn to attack in a run from west to east. The

Ablauflinie (datum line of incendiaries) and the *Leuchtpfad* were not used on this mission, nor were there any turning markers. I./KG 100 aimed its bombs at the target-marking flares and released them from a pre-determined height of 5000 m, having climbed to that altitude whilst still over the sea. Again, it was the western districts that suffered, this time Fulham, Putney and Chiswick. The bombing lasted for two hours and around 600 fires broke out, causing 216 fatalities and leaving 417 seriously injured.

One He 177 suffered a compass failure and another managed to fly its mission with a bundle of *Düppel* wrapped around its aerial. Both aircraft made it back to the Continent, however, but landed at Marx and Twente, respectively, with fuel running low, each some distance from Rheine. No further casualties were suffered by the Heinkels during the raid and all aircraft eventually returned to Châteaudun.

There was to be no respite for airmen or Londoners. On the afternoon of the 22nd, Hauptmann von Kalckreuth arrived at Châteaudun to brief the 14 crews of I./KG 100 slated to fly the mission to London that night as part of a force of 185 aircraft. Shortly before 2030 hrs, the *Gruppe*'s He 177s were lined up at the end of the runway in a pre-arranged order. As *Gruppenkommandeur*, von Kalckreuth did not actually fly his aircraft, but rather acted as an observer, while his pilot was former Lufthansa man Stabsfeldwebel Gregor. This was also the case with Oberleutnant Maier, *Kapitän* of 3. *Staffel*, whose pilot was Feldwebel Nagler.

The aircraft of the more experienced crews were loaded with two SC1800 1800 kg and two SC1000 1000 kg bombs each, and they were to take off first on account of their slower rate of climb, while the remaining machines carried four 1000 kg bombs apiece and followed on. At 2037 hrs, the first Heinkel began to rumble down the runway, its tail light on until it was airborne, at which point it was turned off as a signal to the next aircraft that the runway was clear. The bombers then circled the airfield at 1000 m in left-hand turns and the formation set course for the target. Around half of the aircraft were fitted with *Neptun* tail-warning devices, but because the Heinkels would be making closely-timed attacks, the devices could not be properly deployed since friendly, following aircraft in the stream would produce blips that could not be distinguished from enemy nightfighters. This was not of undue concern to most crews who felt that provided they maintained a high state of alert while over the sea and enemy territory, the use of *Düppel*, combined with violent evasive action, was sufficient to offer protection in the eventuality a nightfighter was spotted.



He 177s of KG 100 in formation against a cloudy sky, with aircraft ‘H’ in the background

However, this would not be enough to save the crew of Oberfeldwebel Wolfgang Ruppe’s He 177A-3 Wk-Nr 332227 5J+QL of 3./KG 100. At around midnight the British GCI station at Happisburgh, on the Norfolk coast, informed a patrolling Mosquito XVII of No 25 Sqn, flown by Flt Lt Alastair Baillie, that it had picked up a contact on an enemy aircraft heading west. Baillie and his navigator, Flg Off Simpson, made off in pursuit, with the Happisburgh controller guiding the Mosquito to within three miles of the enemy aircraft, before the fighter’s own radar took over, picking up two traces. Fixing on one of them, Baillie closed in to 2000 ft, but became frustrated when searchlights illuminated the sky for several minutes. After they were quickly doused, the Mosquito crew continued to chase what they thought was a Do 217, weaving off to port. Achieving ‘visual’ at 400 ft, Baillie fired a two-second burst, at which the enemy aircraft – in reality Ruppe’s He 177 – blew up in the air. Pieces of the Heinkel struck the Mosquito, causing its right engine to overheat, but Baillie managed to land it safely at Coltishall at 0025 hrs, while the remains of the unfortunate Heinkel rained down to earth near Yoxford, in Suffolk.

The only survivor from 5J+QL was Obergefreiter Emil Imm, the rear gunner, who crashed to earth in the severed tail section, landing some two miles from the main crash site. Imm, suffering from two broken legs, was helped out of the wreckage by a local man, who offered the German airman the customary cup of tea.

A total of 81 tons of bombs fell on London during the raid, with another 75 tons across Essex and Kent. There was widespread damage in several boroughs and a large fire in Victoria Dock took several hours to put out.

London’s docks were the target for the following night (23/24 February) in a raid that involved a small number of He 177s from 2 and 3./KG 100 along with aircraft from KG 2, KG 6, KG 54 and KG 101 in a force that totalled 161 machines. In a piece of what Allied intelligence described as ‘retribution propaganda’, the target area was codenamed *‘Hamburg’*. However, it is believed

that only a third of the bombers dropped their ordnance on the capital, being guided by yellow marker flares and with bombing taking place at 4800 m. The bombing lasted for 15 minutes, but again damage was extensive in several boroughs, with the casualty figure put at 300. Paradoxically, for a raid that was supposed to strike at the docks in the east of London, a significant part of the bombload ended up falling on the western counties of Surrey, Sussex and Hampshire. The Heinkels returned without loss, all landing at Châteaudun.

The focus of attack shifted back to 'the Westminster area of government buildings' on 24/25 February. This was a smaller raid involving less than 100 aircraft from I. and II./KG 2 and III./KG 6 and I./KG 66, supplemented by six He 177s from 2. and 3./KG 100. Far fewer than this number actually got anywhere near London, suggesting the demands of the previous nights' operations had affected serviceability. Once again, the attack was scheduled for shortly after 2200 hrs, with the target marked by white flares laid by the *Pfadfinder* of I./KG 66 and fused to ignite at 3000 m. The He 177s left Châteaudun at 2100 hrs and crossed the French coast near Boulogne. Over England, the bombers made for a turning point northwest of High Wycombe, in Buckinghamshire, which was illuminated by red flares. From there they took a reverse course to London.

For the crew of He 177A-3 Wk-Nr 332222 5J+PK, flown by Oberleutnant Wilhelm Hundt of 2./KG 100, it would be a fateful mission when they became caught in the beams of searchlights as they approached London. The Hundt crew had only completed their training at Lechfeld two weeks earlier, and their first mission to London had been the one mounted on 18/19 February, during which they were forced to turn back before reaching the target.

At 2200 hrs that evening, future ace Flt Lt Peter Hall of No 488 (New Zealand) Sqn had been scrambled by North Weald control from Bradwell Bay in his Mosquito XII with his navigator, Flg Off R D Marriott, to conduct a freelance patrol at 18,000ft. Ordered over to the control of Biggin Hill, Hall had subsequently encountered and claimed the destruction of a Do 217 over Sussex at 2225 hrs. He then continued his patrol in a northeasterly direction until he came across what he thought was a 'Ju 188', but which was, in fact, Hundt's He 177. As Hall later reported;

'I observed an intersection slightly below at 13,000 ft and, following this, found the enemy aircraft approaching head-on. Coming in from astern, I identified the aircraft as a Ju 188 and plainly saw the black crosses on the wings. The searchlights doused, but I was able to follow visually after my first attack

from 200 yards, practically dead astern. No strikes seen, but as I gave him three further short bursts, the port engine caught fire and the enemy aircraft went into a steep dive with pieces falling off. I followed him down to 7000 ft and the enemy aircraft was then observed to dive even more steeply and hit the ground, an explosion being seen quite plainly. The position of this crash was fixed by control as east of Wadhurst.'

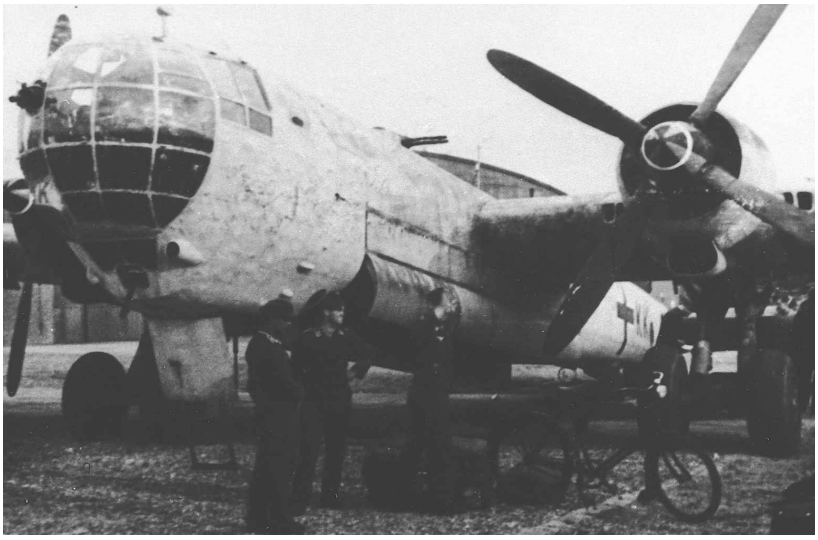
Hundt and his crew had been unable to throw off the Mosquito despite the use of *Düppel*, and the underside of their He 177 caught fire. As the bomber dived towards the earth, Fahnenjunker-Unteroffizier Wolfgang Michaelis (observer), Obergefreiter Adolf Kreiser (radio operator) and Unteroffizier Konrad Keusch (flight engineer/gunner) managed to bail out, but Hundt and his two gunners, Feldwebel Ernst Graf and Unteroffizier Rolf Luce, were killed. The Heinkel actually hit the ground at 2240 hrs, at a shallow angle in a hop field at Chequers Farm in Lamberhurst, Kent, a few miles north of Wadhurst.

After the raid, the He 177s returned to Rheine, but even the previously routine transfer flight from Châteaudun could now be dangerous in skies increasingly occupied by Allied fighters, as the crew of Oberfeldwebel Arno Scholz from 3./KG 100 discovered on 25 February. He 177A-3 Wk-Nr 332198 5J+AL was bounced by USAAF fighters 12 km northwest of St Trond, and although the bomber survived the surprise attack, every member of the crew was wounded. Engines were also still causing problems for I./KG 100, with He 177A-3 Wk-Nr 332655 of Feldwebel Karl Falbermeyer from 1. *Staffel* suffering an inflight failure near Eger that same day. Again, the crew suffered various injuries in the subsequent crash-landing.

Hauptmann Hans Schacke (left), *Staffelkapitän* of 5./KG 100, in conversation with Oberfeldwebel Willy Niederstadt, a pilot in the *Staffel*, at Aalborg in late 1944. Although Schacke was a bomb-aimer, his rank was such that he commanded the *Staffel*. The men are clad in lightweight flying gear, lifevests and oxygen equipment. Niederstadt holds a map marked in Planquadrat and Grosstrapez, or grid squares, and his flying helmet is tucked into the rear of his trouser waist

At 1700 hrs on the evening of 29 February, crews of I./KG 100 at Châteaudun were briefed for an attack on Plymouth that was to take place later that night, but the operation was cancelled just an hour after they had taken off.

Despite questionable results and unreliable resources, Peltz managed to keep up the pressure into March, although from this point the raids would not be repeated to the same magnitude as those in January and February. The commander of IX. *Fliegerkorps* also endeavoured to spread his net, targeting the cities of Bristol and Hull.



Aircrew gather around He 177A-3 Wk-Nr 332206 6N+KK of 2./KG 100, possibly at Châteaudun in early 1944. The aircraft is seen before it had black applied to its lower fuselage sides and undersides for night missions over England during Operation *Steinbock*. The bomber was shot down over Sussex on the night of 1/2 March 1944 by an RAF Mosquito while being flown by Leutnant Kurt Götze. Note the aircraft's unusual spinner pattern

The night of 1/2 March saw just 70 bombers cross the British coast of reportedly more than 100 despatched against London. Included in this force were 15 He 177s from 2 and 3./KG 100 that took off from Châteaudun in the early hours of the 2nd, each carrying four 1000-kg bombs. Their course took them to the *Funkfeur* 8 beacon station at Cherbourg and then on to a point west of Watford, where they turned on to a heading of 116 degrees towards London. This time, the target area was the vicinity of Victoria Station, which was to be illuminated by red marker flares. After releasing their bombs, the He 177s were to fly southeast towards a second turning point at Maidstone and then on a direct course back to Châteaudun.

Flying as part of KG 100's formation that night was Berliner Leutnant Kurt Götze, at the controls of He 177A-3 Wk-Nr 332206 6N+KK of 2. *Staffel*. Unfortunately for Götze and his crew, they would experience an increasingly familiar fate, for as they flew in across Sussex they were attacked by a Mosquito XIII flown by the commanding officer of No 151 Sqn, future ace Wg Cdr Geoffrey Goodman. By the time he intercepted the Heinkel, Goodman and his navigator, Flg Off W F E Thomas, had already shot down a Ju 88 off the Isle of Wight and engaged a Do 217. The latter had evaded them, but another contact was then made at 16,000 ft some 2.5 miles away heading north. The Mosquito came out of its orbit and closed in on the contact. As Goodman later reported;

'Mosquito closed rapidly. Visual came at 5000 ft range and aircraft was

thought to be a Ju 188, but the remains have since been recognised as part of a He 177. It was taking no evasive action and a three-second burst from astern 100 yards to 75 yards caused a violent explosion and the aircraft disintegrated. The Mosquito flew through debris, which shattered the top of the cockpit and wounded the operator. In this case “window” was also experienced. Emergency homing was then requested and the Mosquito landed at Ford.’

Götze’s Heinkel had been flying straight and level at about 20,000 ft on its way to London when Goodman had attacked it. There was a loud explosion and the aircraft immediately started to trail flames. Obergefreiter Willi Fischer, one of the Heinkel’s gunners, believed that the explosion had been caused by an oxygen bottle being hit. Götze gave orders for his crew to bail out, and those that did – Fischer, as well as Unteroffizier Friedrich Emmerich, observer, Unteroffizier Heinz Pohl, flight engineer, and Unteroffizier Ferdinand Klari, rear gunner – were captured. Götze and his radio operator, Unteroffizier Andreas Stuckenberg, were killed.

The aircraft broke up and fell in burning fragments at Hammer Wood, three miles east of East Grinstead, at 0315 hrs, scattered over an area of half-a-mile square, while Fischer was discovered with a foot and part of his other leg missing nearly 30 miles away at Oak Farm, Flimwell. It is possible he may have been struck by Goodman’s Mosquito. After receiving treatment in hospital in Tunbridge Wells, Fischer was later repatriated to Germany via neutral Sweden. British interrogators viewed all the survivors as ‘intelligent and highly experienced’. All, aside from Emmerich, had the gold *Frontflugspange* (mission clasp) for having flown a minimum of 110 missions.

Something of an anomaly. He 177A-3 Wk-Nr 2143 VD+XS is believed to have been the first production A-3 built by Heinkel at Oranienburg. It was assigned initially to 4./KG 100 and was 45 per cent damaged in a landing accident at Gotha on 21 December 1943. Subsequently, in March 1944, it was passed to FFS (B) 16 at Burg, near Magdeburg, for use as a training machine, as seen here. The aircraft is finished in a typical

night operational scheme, with its code crudely reapplied over the KG 100 markings. The words *Arado Flugzeugwerke GmbH Werknummer* (33)2143 were applied in white lettering between the yellow fuselage band and the horizontal stabiliser. However, if this was an A-3, it would appear to have been re-fitted (possibly as a result of damage) with an A-5 rear gun position featuring the 18 mm-thick blister canopy and housing for a 20 mm MG 151

There was a brief respite for I./KG 100 for a few days, although one of its aircraft, A-3 Wk-Nr 332214 5J+RL, flown by Leutnant Wilhelm Werner of 3. *Staffel*, was shot down during its landing approach after a test flight in the Châteaudun area. The bomber fell victim to a Mosquito VI flown by Wg Cdr Freddie Lambert (and navigator Flt Lt E W N Morgan), CO of No 515 Sqn, who was on temporary attachment to No 605 Sqn of No 100 Group, Bomber Command, at the time.

The next loss suffered by 2./KG 100 would come during the raid of 19/20 March when Peltz targeted the east coast port of Hull, having assembled 131 aircraft for the task. This city lay 200 miles north of London, meaning that the Luftwaffe crews would be in the air for longer, most of the time over the North Sea. Eight He 177s from I./KG 100 would participate in the mission, flying out from Rheine over the island of Terschelling and across the North Sea to a point between Spurn Head, at the mouth of the Humber estuary, and Withernsea. They were to then return via the same course. The plan was for the bomber stream to open the attack at 2202 hrs, and for the last to exit at 2233 hrs. Unfortunately, things went awry when the marker flares were dropped over Lincolnshire, well to the south of Hull, many bombers following their path. In total 103 crews claimed to have crossed the English coast.

Oberleutnant Heinrich Müller of 2./KG 100 was piloting He 177A-3 Wk-Nr 2375 6N+DK as it flew north over the water towards Hull, some miles off Skegness, when the bomber was attacked and shot down at 2146 hrs by a Mosquito XII flown by Plt Off Jerzy Brochocki, with his navigator Flg Off Henrik Ziolkowski, of No 307 (Polish) Sqn. The action was witnessed by a Royal Observer Corps post at Skegness. Müller and his entire crew were posted missing.

As for the overall results of the German raid, they were negligible to the point of being unfelt. No bombs fell on Hull, and those ‘incidents’ that there were, were scattered across Lincolnshire and even as far south as north Norfolk.

Smaller-scale missions continued to be mounted during March but, in reality, they were little more than nuisance raids. The ready strength available to Peltz had waned as well. Of 441 bombers assigned to *Luftflotte* 3 on 20 March, only

252 were serviceable, or a factor of 57.1 per cent – significantly lower than the 89.6 per cent applicable to 20 January.

Although the He 177s would not be deployed again until April, Allied fighters took their toll when four P-47Ds of the USAAF's 328th FS/352nd FG shot down He 177A-3 Wk-Nr 2224 6N+TL, flown by Oberleutnant Karl-Heinz Reper of the *Stab* I./KG 100, as it undertook a transfer flight to its operational base at Rheine on 22 March. The entire crew was lost as well as an electrician, a mechanic and two weapons engineers who were also on board. In the first week of April, enemy fighters and bombing raids on Châteaudun and Rheine destroyed five He 177s and severely damaged another. Aircraft availability and readiness plummeted.

He 177A-3 Wk-Nr 2143 VD+XS is seen here after more permanent markings had been applied following its delivery to FFS (B) 16 at Burg from 4./KG 100. The aircraft has its code letters applied in white on the wing undersides, while the underside wingtips are in yellow, as is the fuselage band. The owl emblem of FFS (B) 16 graces the nose beneath the cockpit. Next to VD+XS can be seen He 177A-3 NF+GB

Nevertheless, on the night of 18 April five Heinkels – three from 2. *Staffel* and two from 3. *Staffel*, including 6N+AK, IK, FK and BL – were mustered to take part in what would be the last major raid against London, involving around 125 aircraft in all. Hauptmann von Kalckreuth gave the briefing to his crews at Rheine at 2000 hrs, their target being the docks area close to Tower Bridge. The He 177s were to fly to the Noordwijk beacon (now identified as *'Nora'*), then head west to make landfall on the Suffolk coast near Leiston, north of Thorpeness. Buoys dropped in the North Sea would aid navigation. The bombers would turn at a point ten miles southeast of Newmarket at a height of 5500 m while flying at 375 km/h. On reaching the target, bombs were to be released from a height of 5000 m between 0103-0107 hrs. This time, the He 177s were loaded with 6000 litres of fuel and 12 250 kg bombs, fitted with delayed fuses, which were to be dropped in sticks with 50 m intervals.

He 177A-5 Wk-Nr 550033 (KM+TI) 6N+EM of 4./KG 100 on the taxiway at Aalborg in late 1944. The aircraft is finished in one of several variations of the Mäander camouflage scheme used by aircraft of KG 100, while the last three digits of the Werknummer appear in the customary position on the side of the gun gondola

The He 177s took off between 2318 and 2334 hrs and, together with the Ju 88s of I./KG 54, formed the main attacking force. However, when they reached the Newmarket turning point, the marker flares were so scattered as to cause great difficulties in navigation. He 177A-3 Wk-Nr 2357 6N+AK, flown by Feldwebel Philipp Reiz of 2./KG 100, headed inland over the Suffolk coast due south of the intended crossing point. A short while later a Mosquito XIII flown by Flg Off Stan Huppert and his navigator, Plt Off John Christie, of No 410 (RCAF) Sqn out of Castle Camps were directed onto ‘trade’. Huppert subsequently reported;

‘Closed in to 2000 ft and obtained visual on target, travelling west-south-west, then south. Closed to 1000 ft and identified a He 177. Opened fire with a long burst at a range of approximately 300 ft, and observed strikes on port wing and motor, with pieces flying off and hitting the Mosquito. Accurate return fire from rear turret experienced, which hit our starboard wing and aileron. Visual was lost momentarily as the enemy aircraft peeled off to port.’

Densely-patterned He 177A-5 Wk-Nr 550131 6N+DN of 5./KG 100 was photographed at Aalborg in the spring of 1944. The bulk of II. *Gruppe* began to convert to the He 177 from the Do 217 from November 1943, moving from Leck to Toulouse-Blagnac and then on to Aalborg from March 1944. It was felt that a Mäander-style camouflage would serve to break up the outline of such a large aircraft as the He 177 when over water

Huppert's attack had rendered the He 177's intercom system inoperative. It had been the Heinkel's rear gunner, Unteroffizier Werner Heidorn, who had fired the return burst at the Mosquito, but when he saw it manoeuvring for a second attack, he resorted to the expedient of firing a white flare signal to attract Reiz' attention. But as Huppert recorded, his target was 'regained from the glow of the fire which spread over the enemy aircraft. Closed in again, following the enemy aircraft down and fired three short bursts, observing strikes on the fuselage and wings. The enemy aircraft then burst into flames, pulled up its nose for a moment, stalled, and then spun into the ground, exploding as it hit, followed by fire'.

Moments earlier in the Heinkel, Feldwebel Reiz had ordered the bombload to be jettisoned and the crew to bail out. Four did so before the He 177 broke in half, with the rear section just about intact, while the front section was almost burnt out. The bombs came down at Little Walden, while the pieces of aircraft landed at Cole End near Saffron Walden, in Essex, resulting in the deaths of flight engineer Unteroffizier Georg Speyerer and gunner Obergefreiter Fritz Kopf. The rest of the crew were captured. The remaining Heinkels returned safely.

The crews of II./KG 100 received training on the Hs 293 guided bomb for anti-shipping operations, but had little, if any, opportunity to deploy the weapon in action with the He 177 before operational conditions and fuel shortages began to bite. Here, the crew of He 177A-5 Wk-Nr 550131 6N+DN from 5./KG 100 stand by their aircraft at Alborg in late 1944 or early 1945, by which stage they were largely redundant operationally. Seen here, from left to right, are Oberfeldwebel Willy Niederstadt (pilot), Oberfeldwebel Paul Balke (flight engineer), Obergefreiter Hans Balbach (gunner), Gefreiter Adolf Dops (rear gunner), Unteroffizier Hans Fontius (radio operator) and, *Staffelkapitän* of 5. *Staffel*, Hauptmann Hans Schacke (bomb-aimer, with his back to the camera)

Steinbock would stutter on to the end of the month with desultory results, before it was no longer possible to sustain. I./KG 100 would suffer a heavy loss on one of the final raids, on the night of 21 April when 130 aircraft were slated for another assault on Hull.

Hauptmann Herbert Dostlebe had taken command of 2./KG 100 from Wilfried Schmitz. Dostlebe was an experienced anti-shipping pilot, having initially flown Fw 200s with 3./KG 40 from March 1941, and had been awarded the *Ehrenpokal* in December of that year. He was one of the officers who provided a 'backbone' to I./KG 100's war efforts, but on the mission to Hull his He 177A-3, Wk-Nr 2357 6N+IK, was attacked some 40 miles east of Spurn Head by future ace Flg Off John Corre and his navigator, Flg Off Charles Bines, of No 264 Sqn in a Mosquito XIII from Church Fenton. Corre was guided by GCI towards a 'large twin-engined aircraft' which, from below, he identified as a He 177. Opening fire from dead astern at 200 yards, the Heinkel started to burn, and wreckage from it flew past the nightfighter as Corre observed it going down in a gentle dive at 2355 hrs. Dostlebe and his crew were posted missing.

Five He 177s joined a force of 60 Ju 88s, 29 Ju 188s, 13 Do 217s and ten Me 410s sent to bomb Bristol on the night of 23/24 April. Once more, German bombing was way off target, with no damage reported anywhere in, or near, the port city, but with several loads falling off to the east between Poole and Bournemouth. All the Heinkels returned safely.

In one of the last gasps of any significance before *Steinbock* concluded at the end of April, He 177A-3 Wk-Nr 2506 6N+FL of 3./KG 100, flown by Feldwebel Franz Pomper, failed to return from a mission to Portsmouth on the night of 25/26 April.

Peltz's efforts, whilst causing damage and loss of life in several locations, but mostly around London, did not amount to the campaign of retribution that Göring craved. The lack of accurate bombing was attributable in the main to the inexperience of many of the Luftwaffe crews and shortcomings in navigation methods. In reflecting upon the raids, Peltz remarked that, 'The attacks on the cities were like a few drops of water on a hot stone – a bit of commotion for a short time, then the whole thing was forgotten and people carried on much as before'.

He 177A-5 Wk-Nr 550124 6N+BN of 5./KG 100 in flight over Denmark in the summer of 1944

CHAPTER SIX

LAST GASPS

After the disappointment of *Capricorn*/*Steinbock*, on 23 May 1944 Göring chaired a conference on aircraft production and armament, attended by senior figures from the armaments and air ministries and the Luftwaffe. He lamented making what he termed as ‘our biggest mistake’ in morphing the He 177 from a four-engined bomber into a complex, twin-engined one. Göring told the attendees;

‘The driving obsession to make even this heavy bomber capable of dive-bombing resulted, first of all, in scrapping the four-engined design in favour of the twin-engined type and, as there were no suitable engines with sufficient power available, this led to the use of doubled engines. The He 177 should have been operational by spring 1941, and might have been ready a little later as a four-engined aircraft but for the complete change in the line of development. For what was now necessary to make the aircraft capable of dive-bombing meant the end of the original He 177. All of the difficulties which then arose were due mainly to the sudden concentration on the twin-engined model, and to the fact that an aircraft, which because of its heavy weight and flight characteristics could not dive like the [planned] Ju 187, was nevertheless being forced to do so. Furthermore, dive brakes and every other conceivable type of accessory were tested for months and years until, finally, the aircraft was so completely altered that it could not then revert without some delay to its original function as a bomber.’

With parts littering the floor around it and missing propellers, spinners, armament and one tyre, the sorry remains of I./KG 100’s He 177 ‘W’ lie in a hangar at Châteaudun in the early autumn of 1944, a symbol of the Luftwaffe’s lost bomber force (*Author’s collection*)

Just a few weeks later on 3 July at a meeting of the *Jägerstab*, the emergency fighter production committee, Hauptdienstleiter Karl-Otto Saur advised his colleagues that following a five-hour conference two days previously, Göring had ordered that production of the 'old version of the He 177 should be quickly tapered off' so as to gain labour for the production of badly needed fighters. Furthermore, there was to be no further development of the He 177 'not even in small quantities, and therefore the whole machinery, the whole capacity and everything connected with it will be available for our purposes'. On 6 July Saur reiterated the point. With output of He 177s standing at 79 that month, a further 80 planned for August and then, finally, 66 in September, he described the Heinkel as 'the aircraft which is of great importance in enabling us to commence increased fighter production'.

Notwithstanding decisions being taken at ministry levels, the He 177 soldiered on, with attempts even being made to adapt it for the Luftwaffe's war against Allied bombers. In early 1944, the *Kampfstaffel* of *Erprobungskommando* 25, the Luftwaffe's specialist air weapons development unit that operated a single He 177 at Pardubitz, installed a battery of 33 15 cm rocket tubes, each approximately one metre in length, in three rows of 11 into its Heinkel's fuselage to create a *Grosszerstörer*.

A captured instructor from the ground-attack operational training unit SG 151, also based at Pardubitz, told interrogators that in standing underneath the forward part of the fuselage he had observed how the bomb-bays, bomb-bay doors and fuselage tanks immediately aft of the cockpit had been removed and the tubes installed in their place. The tubes were intended to fire upwards at an angle of 90 degrees to the horizontal axis of the aircraft, or inclined forward and slightly to the right at an angle of 60 degrees, and firing was effected electrically. The battery was divided into two groups and a selector switch could be used to fire the rockets singly, in one of the two groups, or all 33 tubes at once. An upper length of the fuselage and the area where the bomb-bay doors had been removed were fitted with new panels containing 33 circular holes. The tubes did not project above the surface of the fuselage.

Tactically, the intention was for the He 177 to follow an enemy bomber formation at the same height, and then for the Heinkel to pass under and to port of the formation, maintaining a height differential of 1850 m. The former commander of E.Kdo 25, Hauptmann Horst Geyer, confirmed to the author during an interview in 1991 that such an installation had been effected and that practice flights had been made. It is believed up to as many as eight He 177s

were converted to this configuration and were based for a while at Udetfeld and then Finow for trials. However, the variant was never used operationally before the *Kampfstaffel* was disbanded in the late summer of 1944.

Meanwhile, in November 1943, one of the Luftwaffe's oldest bomber wings, *Kampfgeschwader* 1 *'Hindenburg'*, under the command of Oberstleutnant Horst von Riesen, had begun to convert to the He 177 from the Ju 88, which it had operated over Russia. Initially, I./KG 1 under Major Günther Hoffmann-Loerzer, based at Burg, took delivery of 'cast off' and defective Heinkels from KG 100. I./KG 1 was intending to use these aircraft in 'strategic' operations on the Eastern Front. By April 1944, however, both I. and II./KG 1 had been equipped with a mix of He 177A-1s and A-3s, but serviceability was never high and the *Geschwader* suffered from numerous crashes, mainly as a result of engine problems.

By the summer of 1944, KG 1 could field between 50 to 60 He 177A-3s, as well as some new A-5s that had been delivered from the workshops at Sagan-Küpper. The *Stab* and II./KG 1 were then transferred to Prowehren and Seerappen, in East Prussia, from where they would conduct missions directed against Soviet supply hubs and troop assembly areas.

He 177A-5 Wk-Nr 550062 F8+AP of 6./KG 40 was captured by the French Resistance in September 1944 while undergoing an overhaul at Toulouse-Blagnac. It was flown by Wg Cdr 'Roly' Falk from Toulouse to the Royal Aircraft Establishment at Farnborough while still in French markings on 10 September. Ten days later it was given RAF markings and flight-tested on several occasions until transferred to American control in February 1945. The bomber is seen here having recently arrived at Farnborough, still in French markings and inscribed on its fuselage with the words *PRISE DE GUERRE*

In a remarkable feat for the Luftwaffe on the Eastern Front at this stage of the war, as the Soviet summer offensive was imminent, the Heinkels of KG 1 carried out three high-level day and night attacks. All of these mission proved to be relatively successful, and suffered no losses, primarily because the Soviet air force was not accustomed or equipped to dealing with mass formation, high-

altitude bombing raids. Most impressive of all was when Oberstleutnant von Riesen led the whole *Geschwader* of 87 aircraft in an attack on the railway yards at Velikye Luki, 500 km west of Moscow, and at Kalinkovichi, 110 km west of Gomel. The Heinkels were formated into three *Keil*, or wedge-shaped formations of some 30 bombers each, and von Riesen directed the operation by radio in the lead He 177, with the Heinkels releasing their 250 kg bombs simultaneously. Fortunately for von Riesen's crews, they seem not to have been plagued by engine problems on these missions.

Under the codename *Bagration*, the anticipated Soviet offensive opened across a 560 km front on 23 June, with hundreds of tanks spearheading the assault covered by an 'umbrella' of almost total air superiority. In desperation, Göring ordered his 'strategic bombers' to halt the Russian tanks – in other words, they were to operate in the low-level, ground-attack role. When von Riesen questioned the wisdom of such a deployment, the Reichsmarschall telephoned him. 'This was a strange thing to do', von Riesen remembered, 'the top man in the Luftwaffe telling a single *Geschwaderkommodore* what to do'. Göring brushed him aside, scoffing that Allied bombers had conducted similar operations against armoured attacks. He ordered von Riesen to proceed.

One of II./KG 1's first He 177s, upon the *Gruppe*'s return to the Reich from Italy in November 1943, was A-1 V4+RP, seen here with its cockpit and dorsal turret shrouded in tarpaulins. Previously, II./KG 1 had flown Ju 88s, and it began converting to the Heinkel at Brandis before moving successively to Burg and Prowehren

The He 177s went out in pairs at low level, one Heinkel covering the other. But in the heat of combat, inevitably the pairs became separated and around ten aircraft were lost on the first such operation to enemy fighters flying low-level cover over the battlefield. On 28 July 9./KG 1 alone lost three Heinkels to Soviet

fighters. ‘The operation was a complete failure’, recalled von Riesen, ‘achieving no useful results because the bombers just were not manoeuvrable enough to hit small, fast-moving tanks. My *Geschwader* had never lost any aircraft flying at high level. But Göring had his way, so he was happy’.

The crew of He 177 ‘H’ of KG 1 line up for a snapshot. Like the aircraft of KG 100, this machine is finished in a scheme denoting nocturnal operations

The possibility of launching a major air attack against the key power stations of the Soviet Union had lingered in the corridors of the OKL since 1943, when a ministerial official, Professor Dr Ing Heinrich Steinmann, had been commissioned to produce a feasibility study on the prospects of the Luftwaffe mounting a bombing raid against the power supply infrastructure of the Moscow and Upper Volga regions. The Moscow area alone accounted for 75 per cent of the output of the armament industry, and so an attack could have considerable impact on production. Steinmann believed that by carrying out such a strike, the Soviet Union’s ability to wage war would be severely impinged. However, when he submitted his report, it was met with scepticism by Luftwaffe intelligence officers, who felt that the proposed target list was too lengthy, and that attacks on key industrial targets would produce more significant results. Undaunted, Steinmann set about producing a further report, this time centred around a strike against a range of Russian hydroelectric and steam power plants.

On 6 November 1944, under the codename Operation *‘Burgund’*, Göring ordered that in the next full moon period a specially created force of ten He 177

bombers formerly of II./KG 100 was to carry out an attack on three Soviet hydroelectric plants. The bombers would deploy BM1000 *Sommerballon* (‘Summer Balloon’) floating mines.

He 177A-3 6N+OL was a former aircraft of I./KG 100 that was passed to I./KG 1 at the end of 1943. It was named ‘*Olly*’ and was finished in a lesser seen, tight scribble pattern of dark green over base grey. Here, it is believed to have been photographed at Prowehren in July 1944, and the filler marks over the panel lines suggest light repair work to an older airframe. At one time the aircraft was piloted by Oberleutnant Karl Nordbruch, who had flown with KG 10

These were detonated by a passive, short-wave transmission fuse and were filled with 750 kg of Trialen explosive. The *Sommerballon* was divided lengthways into halves, only one half being filled with explosive. When dropped from an aircraft, because of the location of the centre of gravity, which was low down and on one side, and ballast of 1-3 kg, the bomb stood on its nose, inclined from the perpendicular and with little pressure on the ground. Entering the water upstream of a hydroelectric power station, the bomb would be carried by a current flowing at more than 0.5 m per second to the grate of the operating turbine. It was designed to pass easily over small obstacles on the bed. If the bomb exploded at the grate of the turbine, the resulting pressure wave would have been transmitted through the induction channel and would have destroyed the cover of the turbine.

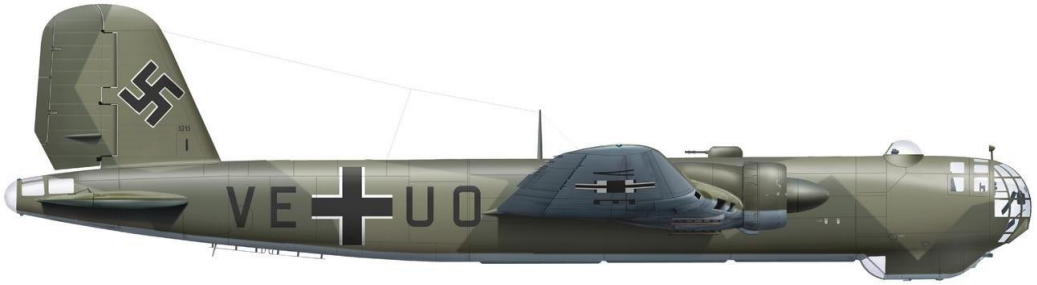
The He 177s of II./KG 100 were to be placed under the operational control of KG 200, which in turn would act ‘in closest cooperation’ with Steinmann. However, Steinmann was dealt a blow when KG 200’s operations officers calculated that a further 150 cubic metres of fuel would be needed for the

operation over and above what he had forecast. Furthermore, acute difficulties were experienced in servicing the He 177's DB 610 engines, for which parts were now in short supply. Because of these problems, the plan was eventually dropped.

For the last months of the war, He 177 *Gruppen* remained scattered and largely redundant across airfields in Germany. I. and II./KG 1 were eventually disbanded at Brandis and some of its personnel used to form the new Me 262 *Geschwader*, JG 7. The 40 or so He 177s of II./KG 100 were ordered to be destroyed at Aalborg, in Denmark, and its personnel released for ground duties. Some aircraft, such as those within the *Staffeln* of I. and II./KG 40, were kept at readiness into 1945, but it was inevitable that they could no longer be used in action and eventually many were cannibalised, their engines and other items of equipment removed for use elsewhere.

Bearing a cartoon 'Indian' nose emblem and the inscription *HUNTER*, He 177A-5 Wk-Nr 550256, formerly of II./KG 40, sits on snow-covered earth at Bovingdon, in Hertfordshire, while in American markings and custody. This Heinkel, which was also captured in Toulouse, was subsequently flown to Villacoublay on 28 September 1944. Here, American radio equipment was installed, and in January 1945 it was flown to Bovingdon. The following month orders were issued to prepare the aircraft for onward movement to the US, but after flying to Paris on the first stage of its delivery flight, as with so many He 177s, the bomber suffered an engine failure and the unit had to be replaced. When it did eventually attempt to depart for the US after repair, a tyre burst on take-off and the aircraft ground-looped, its fuselage breaking in two. The He 177 was subsequently scrapped

APPENDICES
COLOUR PLATES

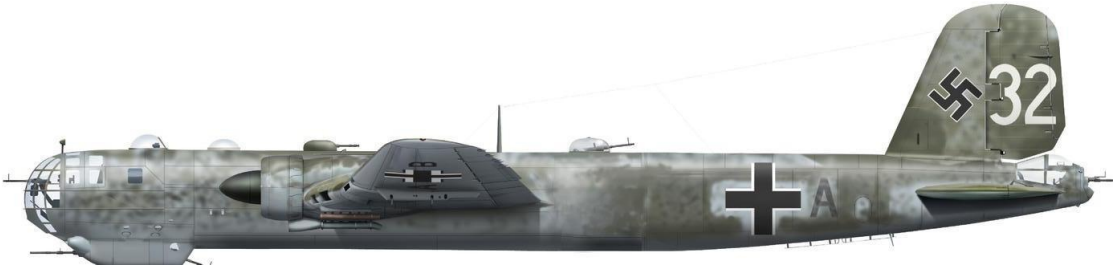


1
He 177A-1 Wk-Nr 5215 VE+UO of *Erprobungsstaffel* 177, Rechlin, Germany, December 1942
This aircraft crashed at the *Erprobungsstelle* Rechlin on 21 December 1942 following failure of the starboard engine while being flown by Hauptmann Rudolf Mons of *Erprobungsstaffel* 177. The aircraft was finished in a splinter pattern of RLM 70/71.

2
He 177A-1 E8+HK of I./FKG 50, Zaporozhye-Süd, Russia, January 1943
This aircraft was finished in a standard splinter pattern of RLM 70/71, with the fuselage code in black. ‘E8’ was an *Erprobungsstelle* Rechlin code taken on by FKG 50. The *Geschwader* emblem of a white ‘Tatzelwurm’ on a black shield outlined in red was applied below the glazed cockpit panels, and the rear fuselage carried a yellow Eastern Front theatre identification band, as did the underside wingtips. The spinner tips are believed to have been in red, denoting 2. *Staffel*.

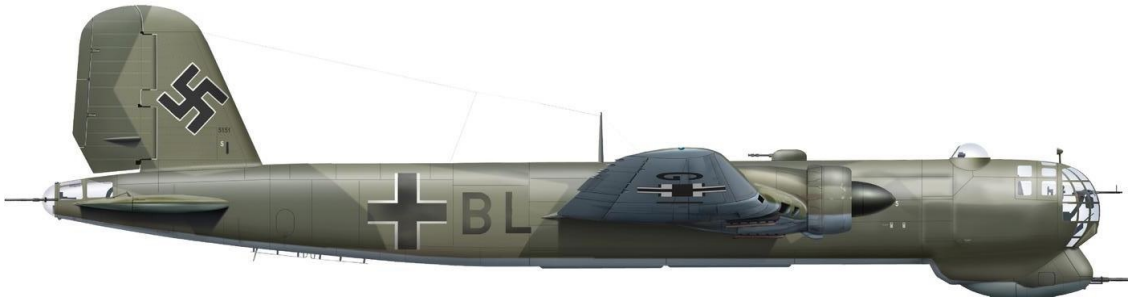
3

He 177A-1 E8+HL of I./FKG 50, Zaporozhye-Süd, Russia, January 1943
Finished in a similar style to the previous aircraft, and with similar markings, this He 177 had spinner tips painted in the yellow of 3. *Staffel*. The shield of the 'Tatzelwurm' emblem was also outlined in yellow.



4

He 177A-3 'White 32' of IV.(Erg)/KG 40, Brandis, Germany, January 1943
Seen at Brandis in January 1943, this aircraft bore a faded and patchy pale grey mottle and green finish, which was probably the result of an earlier scheme being overpainted. There was no fuselage code, although the trace of an individual aircraft letter 'A' was visible aft of the fuselage Balkenkreuz. The large white '32' on the rudder was to aid identification in the air.



5

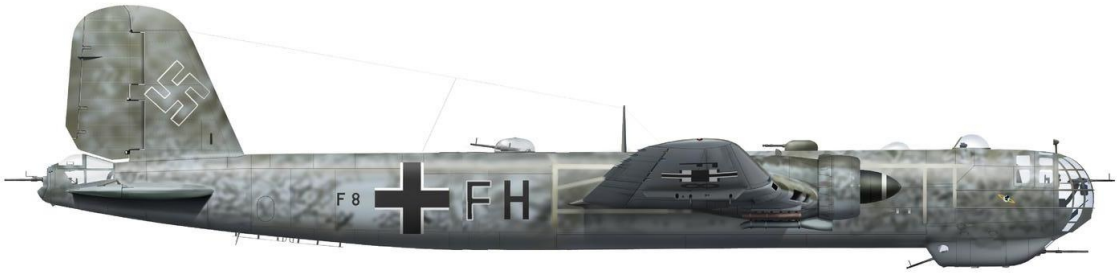
He 177 V12/A-1 Wk-Nr 5151 GI+BL of *Erprobungsstelle,* Tarnewitz, Germany, summer 1943

The aircraft was finished in a standard splinter pattern of RLM 70/71, with a faded code and tail Swastika. The Werknummer was applied just below this, as was another marking that is illegible. This He 177, which was the first production A-1, was used to test a nose-mounted 30 mm MK 101 cannon intended for use against ground targets.

6

He 177A-5 Wk-Nr 550136 6N+HN of 5./KG 100, Toulouse-Blagnac, France, late summer 1943

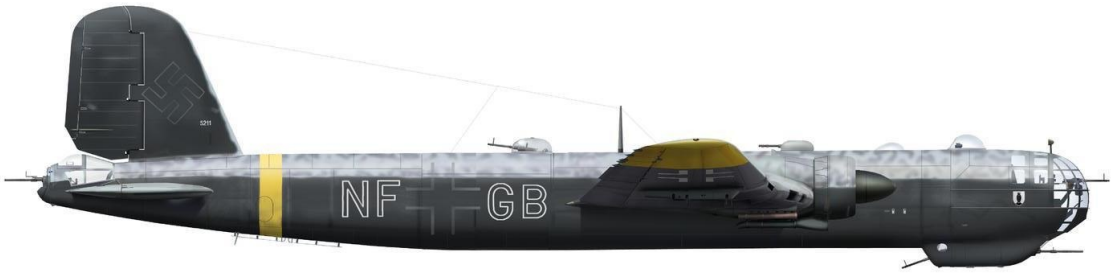
This aircraft is believed to have been deployed on sorties with the Hs 293 guided missile. Most of the fuselage and wing undersurfaces were a matt black, while the upper areas of the fuselage and wing uppersurfaces were finished in RLM 76 grey, over which was applied a mottle of medium grey in RLM 75. All national markings were very muted or only just visible with grey outlines. The last two letters of the code were applied in red, this colour also being repeated on the spinner tips.



7

He 177A-3 Wk-Nr 5175 F8+RH of I./KG 40, Fassberg, Germany, autumn 1943

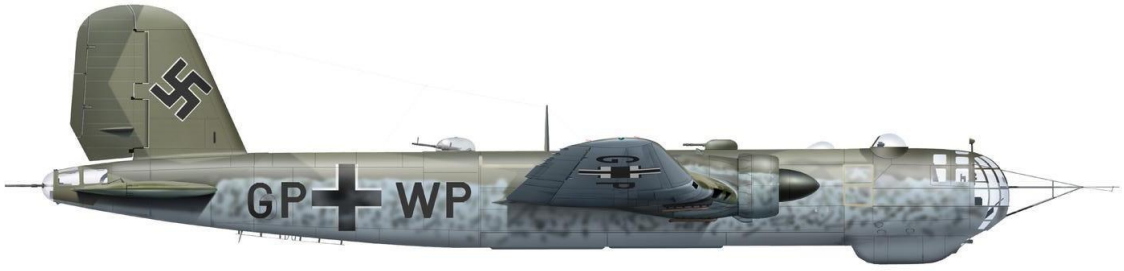
An early example of one of KG 40's He 177s, this aircraft is finished in RLM 76 grey with dark green mottling. A small rendition of the *Geschwader*'s 'World in a Ring' emblem has been applied just below the rear cockpit glazing panel, while the individual aircraft letter 'F' is in black, outlined in white. The He 177 also has filler paste visible along the panel lines in the fuselage centre section above the wing root.



8

He 177A-3 NF+GB of *Flugzeugführerschule(B)* 16, Burg, 1943

This armed training aircraft retained its call sign letters on its fuselage and carried the emblem of FFS(B) 16, depicting a perched owl on a white shield, below the cockpit glazing. The He 177 also had a rear yellow fuselage band and under wingtips, denoting its employment as a training aircraft.

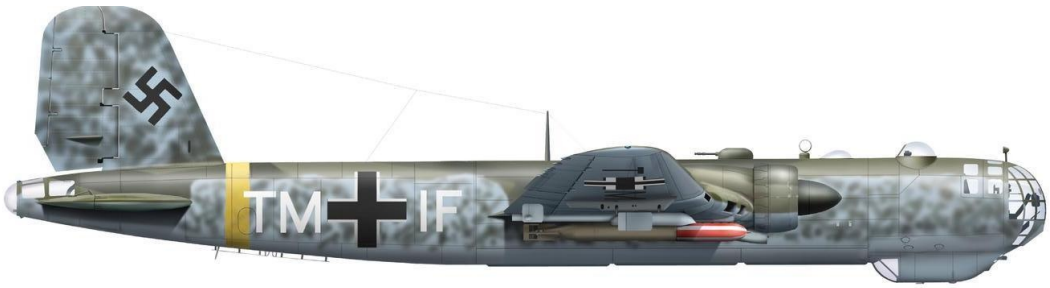


9

He 177A-3 Wk-Nr5366 GP+WP of *Erprobungsstellen*, Rechlin and Werneuchen, Germany, late 1943/early 1944

This Arado-built aircraft is depicted here fitted with a nose probe to assist with diving tests. The aeroplane was also subsequently used to carry out stalling tests

and flutter trials, as well as being fitted with an anti-spin parachute and the FuG 217 radar.



10

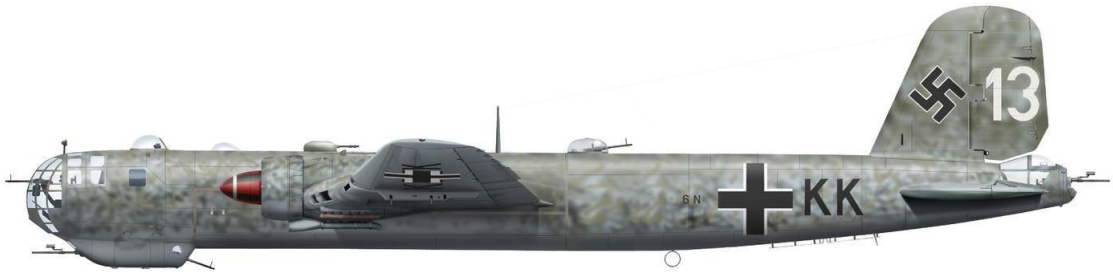
He 177 V31 Wk-Nr 550202 TM+IF of *Torpedowaffenplatz*, Gotenhafen-Hexengrund, Germany, early 1944

This Arado-built Heinkel was utilised by the *Torpedowaffenplatz* at Gotenhafen-Hexengrund for torpedo trials in early 1944. It is seen here carrying a single Blohm und Voss L10 glider torpedo carrier under its right wing, to which was attached an LT F5b torpedo marked to denote a dummy warhead. The aircraft had a base coat of RLM 76, over which was applied a heavy mottle of RLM 70 that extended the length of the fuselage, while the camouflage on the tail assembly was more scribbled.

11

He 177A-3 6N+SK of 2./KG 100, Châteaudun, France, early 1944

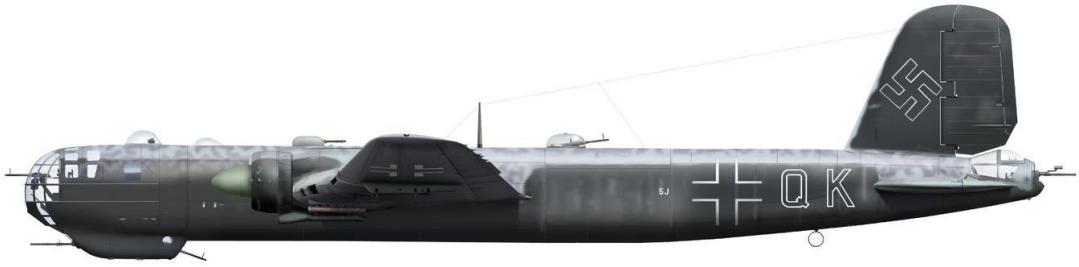
Christened *Susi*, this He 177 was typical of those aircraft deployed on raids against Britain in early 1944. Its uppersurfaces and the upper third of its fuselage was finished in a base grey, probably 76, with a thin, darker grey meander camouflage applied on top, while the rest of the fuselage and tail unit was black.



12

He 177A-5 Wk-Nr 332206 6N+KK of 2./KG 100, Châteaudun, France, early 1944

Shot down over East Grinstead, in West Sussex, on the night of 1/2 March 1944, this aircraft (flown by Leutnant Kurt Götze) was finished in a base of RLM 65 with a three-colour mottle of RLM 02, 74 and 75. The fuselage code was all black and the spinners were finished in a distinctive eight-segment pattern of red and black with a single white ring. On the tail fin and rudder was painted a large white tactical number '13' which obscured the standard-sized black Swastika. By the time of its demise, the aeroplane had had black applied to its lower fuselage sides and undersides for night missions over England during Operation *Steinbock*



13

He 177A-3 Wk-Nr 22?? 5J+QK of 2./KG 100, Châteaudun, France, spring 1944

Retaining the '5J' code of I./KG 4, this aircraft has had the majority of its fuselage and all of its tail painted black for nocturnal operations. The uppersurfaces remained in a two-tone medium and dark grey mottle, however.

14

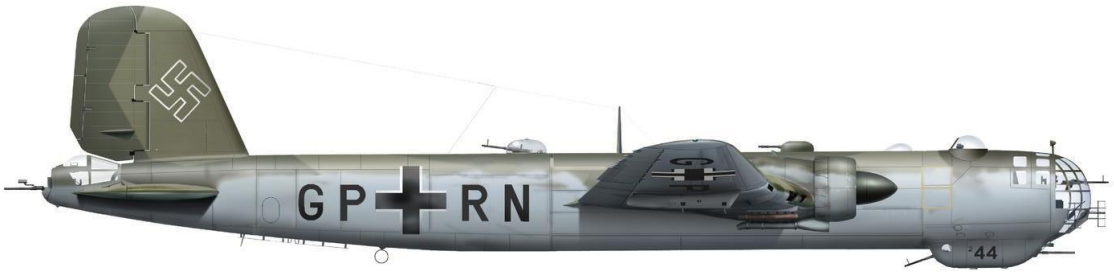
He 177A-5 Wk-Nr 550043 6N+HM of 4./KG 100, Toulouse-Blagnac, France, or Aalborg, Denmark, spring-summer 1944

This He 177 was camouflaged in a strong, wide Mäander pattern of RLM 76 grey and a green scribble of 70 or 71.

15

He 177A-3 Wk-Nr 2236 TM+IU of *Deutsche Forschungsanstalt für Segelflug*, Ainring, Germany, June 1944

This Oranienburg-built machine was finished in a base of RLM 76 grey over which was a heavy stipple of green, probably either 70 or 71, that became a mottle on the tail. The gondola appears to have been painted black, along with the underside of the aircraft. This Heinkel was used by the DFS to conduct air-towing tests using an auxiliary wing fitted with a standard 300-litre drop tank for additional fuel. The latter was fed to the Heinkel via a pipe in the tow bar.



16

He 177A-5 Wk-Nr 550244 GP+RN, unit and location unknown

This Arado-built Heinkel was fitted with FuG 200 *'Hohentweil'* ship-search radar.

17

He 177A-3 Wk-Nr 2144 VD+XT of I./KG 1, Brandis, Germany, mid-1944

Built by Heinkel at Oranienburg as one of a batch of 110 machines, this aircraft was delivered to I./KG 1. It was finished in a typical night bomber scheme of mottled grey uppersurfaces and black undersurfaces, with a mid-fuselage demarcation line. The code was applied in a dark grey outlined thinly in white. This aircraft suffered an undercarriage collapse shortly after delivery to the unit.

18

He 177A-3 Wk-Nr 332367 6N+EK of 2./KG 100, Châteaudun, France, September 1944

Named *Edith*, 6N+EK was captured by Allied troops at Châteaudun when the airfield was liberated in the autumn of 1944. It was camouflaged for night operations, with RLM 74/75 scribble over its uppersurfaces and the rest of the aircraft, including its tail assembly, in black.

19
He 177A-5 Wk-Nr 550131 6N+DN of 5./KG 100, Aalborg, Denmark, October 1944
Featuring another variation of over-water Mäander camouflage, this KG 100 Heinkel's base RLM 70/71 has been profusely 'scribbled' in RLM 76. As was standard, the aircraft carried the last three digits of its Werknummer on the gondola beneath the cockpit. The spinner tips were in the 5. Staffel colour of red.

20
He 177A-5 Wk-Nr 550124 6N+BN of 5./KG 100, Aalborg, Denmark, October 1944
Displaying yet another variation in paint finish, this machine was built by Heinkel at Oranienburg as one of a batch of 60 aircraft.

21

He 177A-5 Wk-Nr 550133 6N+AC of *Stab* II./KG 100, Aalborg, Denmark, autumn 1944

This Heinkel was finished in a standard splinter pattern of RLM 70/71, over which was applied a random, over-water Mäander scribble in a very light grey, extending over the upper two-thirds of the fuselage. This scheme also obscured the tail Swastika. The individual letter ‘A’ was in red, as were the spinners.

BIBLIOGRAPHY AND SOURCES

Imperial War Museum, London:
AHB.6 Microfilm, Reel 20, 8.*Abteilung, Der Verlauf der Erdoperation – 1943*
HQ, USAFE, *Air Staff Post Hostilities Intelligence Requirements on GAF: Tactical Employment – Bomber Operations (Section IV.D)*, 10 October 1945

National Archives (formally PRO), London:
ADM1/29509
AIR20/7700, 7708, 7709, 7711
AIR26/381
AIR27/1900
AIR40/165, 2162, 2423, 2475
AIR 50/66/105
HW13/37 & 38

Bundesarchiv-Militärchiv, Freiburg-im-Breisgau:
RL7/482, RL8/56

National Archives and Records Service, Washington:
OKL Kriegstagbuch, Anlagen C, 24.11.43-26.5.44
Göring Nr.8937/43, 3.12.43
Ob.d.L. Füst.Ia.Nr.9009/43, 25.12.43

PUBLISHED ARTICLES

Corum, Professor James S, *To stop them on the Beaches – Luftwaffe operations against the Allied Landings in Italy*, Air Power Review, Vol 7, No 2, Summer, Shrivenham, 2004
Overy, R J, *From 'Uralbomber' to 'Amerikabomber' – the Luftwaffe and Strategic Bombing*, The Journal of Strategic Studies, 1 (2), September 1978

BOOKS

Balke, Ulf, *Kampfgeschwader 100 'Wiking' – Eine Geschichte aus Kriegstagbüchern, Dokumenten und Berichten 1934-1945*, Motorbuch-Verlag, Stuttgart (1981)

Beale, Nick, *Kampfflieger Volume Four – Bombers of the Luftwaffe Summer 1943–May 1945*, Classic Publications, Hersham (2005)
Beauvais, Heinrich, Kössler, Karl, Mayer, Max and Regel, Christoph, *German Secret Flight Test Centres to 1945*, Midland Publishing, Hinckley (2002)
Bennett, John, *Fighter Nights – 456 Squadron RAAF*, Banner Books, Belconnen (1995)
Bollinger, Martin J, *Warriors and Wizards – The Development and Defeat of Radio-Controlled Glide-Bombs of the Third Reich*, Naval Institute Press, Annapolis (2010)
Boog, Horst, *Die Deutsche Luftwaffenführung 1935-1945 – Führungsprobleme, Spitzengliederung, Generalstabsausbildung*, Deutsche Verlags-Anstalt, Stuttgart (1982)
Budraß, Lutz, *Flugzeugindustrie und Luftrüstung in Deutschland 1918-1945*, Droste Verlag, Düsseldorf (1998)
Cescotti, Roderich, *Kampfflugzeuge und Aufklärer Von 1935 bis heute* (*Band* 15) *Die deutsche Luftfahrt*, Bernard & Graefe Verlag, Koblenz (1989)
Goss, Chris, *Osprey Combat Aircraft 115 – Fw 200 Condor Units of World War 2*, Osprey Publishing, Oxford (2016)
Griehl, Manfred and Dressel, Joachim, *Heinkel He 177, 277, 274*, Airlife Publishing, Shrewsbury (1998)
Heinkel, Ernst, *He 1000*, Hutchinson & Co, London (1956)
Hentschel, Georg, *Die geheimen Konferenzen des Generalluftzeugmeisters: Ausgewählte und kommentierte Dokumente zur Geschichte der deustchen Luftrüstung und des Luftkrieges 1942-1944*, Bernard & Graefe Verlag, Koblenz (1989)
Hessler, Gunther, *The U-Boat War in the Atlantic 1939-1945*, Her Majesty's Stationery Office, London (1989)
Kaiser, Jochen, *Die Ritterkreuzträger der Kampfflieger, Band 1*, Luftfahrtverlag Start, Bad Zwischenahn (2010)
Kaiser, Jochen, *Die Ritterkreuzträger der Kampfflieger, Band 2*, Luftfahrtverlag Start, Bad Zwischenahn (2011)
MacKay, Ron and Parry, Simon W, *The Last Blitz – Operation* Steinbock*: Luftwaffe Operations over Britain January to June 1944*, Red Kite, Walton on Thames (2011)
Morison, Samuel Elliot, *History of United States Naval Operations in World War II: Volume 9 Sicily-Anzio January 1943–June 1944*, University of Illinois Press, Champaign (2002)

Price, Alfred, *Heinkel He 177*, Profile Publications, Windsor (1972)
Price, Alfred, *Blitz on Britain 1939-1945*, Ian Allan, Shepperton (1977)
Roba, *KG 100 Wiking – La Kampfgeschwader 100 L'escadre au Drakkar (1938-1944)*, Éditions LELA Presse, Le Vigen (2015)
Roskill, Capt S W, *The War at Sea 1939-1945 – Volume III: The Offensive Part I: 1st June 1943-31st May 1944*, The Naval & Military Press Ltd, Uckfield (2004)
Simons, Martin, *German Air Attaché – The Thrilling Story of the German Ace Pilot and Wartime Diplomat Peter Riedel*, Airlife, Shrewsbury (1997)
Smith, J. Richard and Eddie J Creek, *Heinkel He 177 Greif – Heinkel's Strategic Bomber*, Classic Publications, Hersham (2008)
Stubner, Helmut, *Das Kampfflugzeug Heinkel 177 Greif und seine Weiterentwicklung*, Eurodoc.Corporation Verlagsgesellschaft, Zürich (2003)
Trenkle, Fritz, *Die Deutschen Funk-Navigations- und Funk-Führungsverfahren bis 1945*, Motorbuch Verlag, Stuttgart (1979)
Wakefield, Ken, *Pfadfinder – Luftwaffe Pathfinder Operations Over Britain 1940-44*, Tempus, Stroud (1999)
de Zeng IV, Henry L and Stankey, Douglas G, *Bomber Units of the Luftwaffe 1933-1945 – A Reference Source, Volume 1*, Midland Publishing, Hinckley (2007)
de Zeng IV, Henry L and Stankey, Douglas G, *Bomber Units of the Luftwaffe 1933-1945 – A Reference Source, Volume 2*, Classic Publications, Hersham (2008)

WEBSITES

Convoy Web at **www.convoyweb.org.uk**
The Luftwaffe 1933-1945 at **www.w2.dk** including deZeng IV, Henry L and Stankey, Douglas G, *Luftwaffe Officer Career Summaries*
TRSMA – The Rohna Survivors Memorial Association at **rohnasurvivors.org**
U-boat Archive at **www.uboatarchive.net**

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Robert Forsyth has studied the history and operations of the Luftwaffe for many years. He is the author of *JV 44 – The Galland Circus* (1996), *Battle over Bavaria: The B-26 versus the German Jets* (1998), *Mistel: German Composite Aircraft and Operations 1942-1945* (2001), *Messerschmitt Me 264 Amerikabomber* (2006 – with Eddie J Creek) and *He 162 Volksjäger* (2008 – with Eddie J Creek). He has also written more than 20 titles for Osprey Publishing, including *Jagdverband 44* and *Jagdgeschwader 7* (Aviation Elite Units), *Fw 190 vs B-17* (Duel), *Aces of the Legion Condor and Luftwaffe Viermot Aces* (Aircraft of the Aces), *Me 262 Bomberand Reconnaissance Units* (Combat Aircraft) and *Shadow over the Atlantic*. Robert works in publishing, having founded Classic Publications and the imprint Tattered Flag.

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Jim Laurier is a native of New England, growing up in New Hampshire and Massachusetts. He has been drawing since he could hold a pencil and throughout his life he has worked in many mediums creating artwork on a variety of subjects. He has worked on the Osprey Aviation list since 2000, and in that time he has produced some of the finest artwork seen in these volumes.

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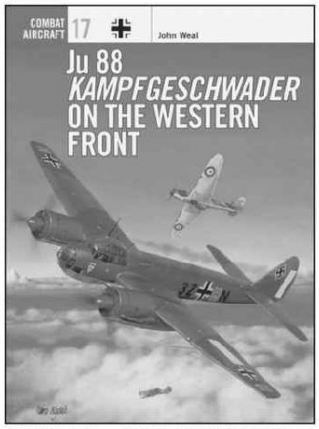

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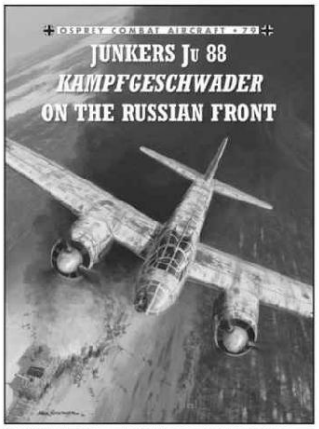

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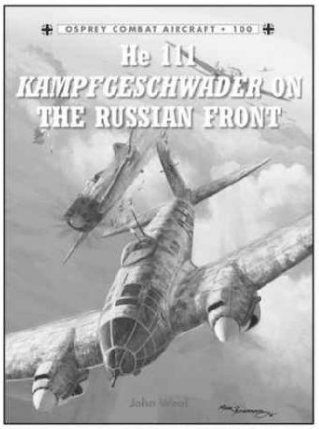

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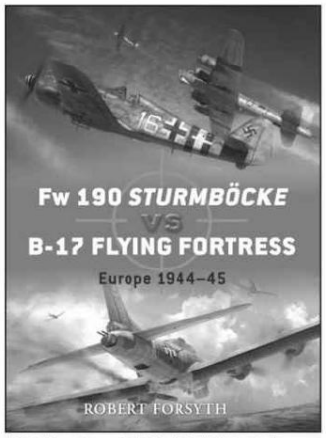

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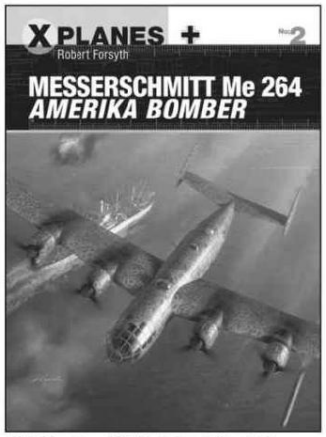

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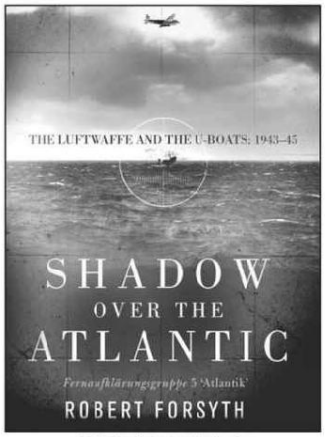

ISBN: 9781472820457

OSPREY PUBLISHING
Bloomsbury Publishing Plc
PO Box 883, Oxford, OX1 9PL, UK
1385 Broadway, 5th Floor, New York, NY 10018, USA
E-mail: **info@ospreypublishing.com**
www.ospreypublishing.com

OSPREY is a trademark of Osprey Publishing Ltd

First published in Great Britain in 2018

This electronic edition published in 2018 by Bloomsbury Publishing Plc.
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A catalogue record for this book is available from the British Library.

PB ISBN: 9781472820396
eBook ISBN: 9781472820419
ePDF ISBN: 9781472820402
XML ISBN: 9781472821935

Edited by Tony Holmes
Cover Artwork by Mark Postlethwaite
Aircraft Profiles by Jim Laurier
Typeset by PDQ Digital Media Solutions, Bungay, UK

Osprey Publishing supports the Woodland Trust, the UK's leading woodland conservation charity. Between 2014 and 2018 our donations are being spent on their Centenary Woods project in the UK.

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ACKNOWLEDGEMENTS
The author wishes to express his thanks to the late Manfred Griehl, Eddie J Creek, J Richard Smith and Martin Pegg, all of who have assisted with information on, and photographs of, the He 177 over the years, as well as to Edwin R (Ted) Oliver who has once again been incredibly helpful during the preparation of this book.

The author would like to acknowledge the kind assistance of EN Archives for the provision of photographs used in this book.

Front Cover
Mark Postlethwaite's cover painting depicts two He 177 bombers as they cross over London through anti-aircraft fire and the beams of searchlights during one of the raids mounted as part of Operation *Steinbock*, the Luftwaffe's bombing campaign against the British Isles in early 1944. The lead aircraft is He 177A-3 Wk-Nr 2235 6N+HK of 2./KG 100, whose bombers were split between Rheine and Châteaudun. Built by Heinkel at Oranienburg, it is finished in a typical night scheme of mottled grey uppersurfaces, with the demarcation line with the undersurface black being a little over halfway up the fuselage. The aircraft code was applied in dark grey outlined thinly in white, while the spinners were in red. The name Helga on the bomber's nose, denoting the He 177's individual code letter 'H', has been painted just below the cockpit – a practice that was also seen on other aircraft from this *Staffel*.

Wk-Nr 2235 would crash eight kilometres southwest of Cloyes-sur-le-Loir, in France, on its return to Châteaudun after sustaining damage during a raid on Portsmouth on the night of 26-27 April 1944, the He 177 having dropped 12 250 kg bombs on its target. Pilot Hauptmann Gustav Heckewerth (*Staffelkapitän* of 2./KG 100), observer Feldwebel Adolf Fischer, radio operator Unteroffizier Alexander Leichenich and flight engineer Unteroffizier Karl Petermann were all killed, while gunners Unteroffizier Alfred Reinsberger and Gefreiter Joseph Steirer survived with injuries

Title Page

This clear image of a He 177A-1 of I./KG 50 at its exposed dispersal in Russia shows the typical markings of such an aircraft, including the *'Wurm'* unit emblem of either 1. or 3. *Staffel* and the yellow Eastern Front theatre band on the rear fuselage. The cockpit glazed panel is fitted with a 7.92 mm MG 81 machine gun, while the A-2 *Stand* has a 20 mm MG FF fitted with a flash suppressor. The dorsal B-1 *Stand* position appears to be missing the housing for the FDL B 131/1A barbette, instead being covered with a leather or canvas shroud that was possibly the result of improvisation following damage